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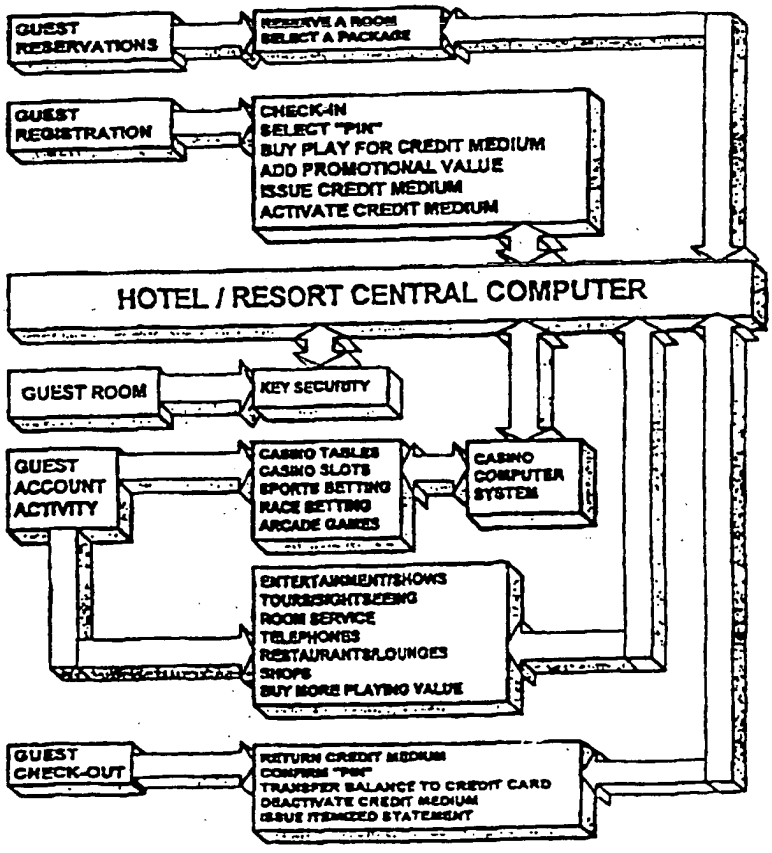
(54) Title: ADVANCED CASINO GAMBLING SYSTEM AND METHOD

(57) Abstract

This invention is a gaming system and method (Figs. 1a-12) involving sensors (30) that read the values of the gaming materials (26, 20, 52), house cards that enable playing without chips or cash, in combination with interactive monitors (Figs. 9-10) which enable a player to select a wager and enter playing decisions. One variation fo the system (Fig. 4) uses a house card and a room key disposed together which enable the player to use his room key as a credit medium (20, 52). By making the casino gaming tables (22) compatible with a credit medium, the player/guest may use the card throughout a resort casino complex without ever needing to carry cash or credit cards. The card key combination also enables entry into a stand alone casino after the player has pre-registered off site, and use of the security access key as a credit medium.



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ADVANCED CASINO GAMBLING SYSTEM AND METHOD

This Application is related to and claims the benefit of U.S. Provisional Patent Application Serial No. 60/014,928 entitled "Credit Medium for Resorts and Casino Gambling" filed 05 April 1996 (Attorney Docket No. 64,860-003), U.S. Provisional Patent Application Serial No. 60/021,787 entitled "Advanced Gaming System and Method" filed 15 July 1996 (Attorney Docket No. 64,860-002), U.S. Provisional Patent Application Serial No. 60/023,957 entitled "Credit Medium for Resorts and Casino Gambling" filed 15 July 1996 (Attorney Docket No. 64,860-001), U.S. Provisional Patent Application Serial No. 60/024,505 entitled "Credit Medium for Resorts and Casino Gambling" filed 23 August 1996 (Attorney Docket No. 64,860-004), U.S. Provisional Application Serial No. 60/037,755 entitled "Credit Medium for Resorts and Casino Gambling" filed 13 February 1997 (Attorney Docket No. 64,860-006), and U.S. Patent Application entitled "Credit Medium for Resorts and Casino Gambling" filed 04 April 1997 (Attorney Docket No. 64,860-007), for which no Serial Number has been assigned yet.

Field of Use

The gaming system of the present invention involves hotel casinos and stand-alone casinos and automated play of conventional gaming activities, such as roulette, craps, blackjack, and poker. More particularly, the gaming system involves the use of sensing units, credit medium with readers, and interactive monitors which enable chipless gambling and improved play.

Background of the Invention

Gambling is becoming acceptable in many communities with the prevalence of state lotteries, race tracks, sports wagering, and charity bingo. Communities are competing with other cities and perceive casino gambling as a business, and a way to raise revenues.

However, the state of casino gambling technology is primitive. The play of blackjack in a video game is much better than in a casino. Many players may prefer to gamble on the Internet if the

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casinos fail to improve the quality of play and to provide them with more and better playing options.

Lasers, scanners, and credit cards are an integral part of our lives. Even grocery stores and libraries use these high technologies, while casinos use chips and cash. While older gamblers may prefer the slow pace of conventional play, a new generation of gamblers is emerging who are computer literate. As time pressure increases, players want the option of faster and better play.

Hotels casinos offer promotional packages to individuals who spend considerable time at the tables. Currently, these individuals are identified by offering the same promotions to anyone who stays at the hotel, or by people working in the casino who identify active players at the tables. This system is primitive, since either many individuals are missed, or many are included who should not be. Also, it is difficult for casinos to insure that the promotional incentive is used in their casinos, rather than being cashed in and used at competing casinos or taken home.

Many casinos cater to an international clientele. It is a major inconvenience for such gamblers to buy and sell chips, since exchange rates vary and the player loses money with each exchange.

In games such as blackjack, casinos are looking for ways to cut overhead and other costs. Automatic shuffling machines, which are loathed by many blackjack players, are nevertheless finding increased usage in casinos, since such machines increase game speed, and minimize downtime required to shuffle cards. While players prefer to gamble at $5, $3, and even $2 tables, seats at such tables are disappearing.

Numerous patents apply high technology to game competitions, whether inside or outside a casino, including the following:

U.S. Patent No. 5,451,054 (Orenstein) discloses a table for playing poker having a plurality of playing positions, each position having a card scanner for identifying cards placed face down thereon, for observation by an audience but not by competing players of the cards held

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by the individual players during a poker tournament, and continually and accurately track the play of the game.

U.S. Patent No. 5,198,976 (Form et al.) discloses an interactive multi-functional system for providing a variety of functions in a bowling alley environment where touching of the screen provides automatic scoring, the ordering of food or beverages, the word or video game play during intervals when the lane is inoperative, league standings and schedules information, and payment for services with credit or debit cards.

U.S. Patent No. 5,159,549 (Hallman, Jr. et al.) discloses a data processing system for tallying the wealth of the individual players in a game of chance such as poker where the individual players compete against each other by making wagers.

Player stations are used by the individual players who purchase play during a banking phase from the bank or house in a sequential manner, and no chips or cash is used during play. The system displays the amount of the pot, the amount of the ante for the next player, which players are in the game, and the order of the betting is strictly enforced.

U.S. Patent No. 4,339,798 (Hedges et al.) discloses a remote gaming system for casino-type play for a plurality of live games such as roulette, craps, and keno enabling player participation from a remote location, using a debit card with a preselected credit amount.

While each of these systems advance the state of gaming technology, none either alone or in combination with the others provide means to enable fully automated play of all gambling activities within a casino in a live mode.

Casinos monitor the play of table gaming activities with mirrors and cameras recording twenty-four hours each day looking for dealer errors, player cheating, player use of systems, or any other irregularities. Also, pit crews constantly monitor play. In addition, generally four shifts of dealers are needed for staffing gaming activities.

What is needed is a system for use in a resort or casino hotel community which includes shops, restaurants, and other entertainment options where cash and credit cards are not needed. Such a system will increase security for the guest on the premises by enabling him to use a player station that cannot be used by someone who steals or finds it. The system will also enable the hotel to confirm the guests' driver's license and credit card identification by hotel staff registering the guest before issuing the credit medium.

A system is needed that will enable the casino to provide promotional incentives to guests who stay in the hotel and play in the casino, while at the same time enable the hotel to ensure that the promotional incentives are used on the premises. The system that will also be useful in locating a guest or player on the premises in the case of emergencies, or to locate a card that has been lost or stolen.

What is needed is a system that will enable casinos to reduce personnel costs and overhead within the casino by replacing cashiers, and staff that load and empty tables and machines with a centralized computer processing system. The system that will also eliminate time counting and exchanging chips, thereby speeding up the play of the casino table games adding more excitement for the players, and more profits for the casino.

What is needed is a system that is non-obtrusive to the guest and requires minimal time to acquire during room registration within the hotel, and a system that is convenient and attractive for the guest or player to use, and reliable for the resort, hotel, and casino. The system will also enable the casino to rate all players who use the system to gamble, concerning the amount of time the players are gambling and the amount of the wagers, thereby enabling the casino to formulate lists of players for future promotional consideration.

What is needed is a system to provide a guest or player with available credit balance in real time, that makes his stay in the hotel complex more enjoyable. The wagering system for use in a hotel or resort complex will enable guests not to carry cash or credit cards, thereby decreasing the risk of loss or theft of those funds either on the premises, or after the guest leaves the premises. The system will also enable players to make wagers in a casino game in the midst of other players

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who do not know the amount of the wagers.

Summary of the Invention

While the advanced gaming system of the present invention is applicable to all games played within a casino (such as roulette, craps, poker), reference is made to blackjack for purposes of illustration only. For blackjack play, sometimes referred to as "twenty-one" or "beat-the-dealer", each player uses a credit medium with which play is added to the card by the player at a remote location. The credit medium is preferably similar to a debit card or an ATM card. The player has access to a data processing terminal via an interactive monitor during the play at the blackjack table via the credit medium. At the beginning of each hand, the player digitally selects the wager amount by use of the credit medium. Once play begins, the wager amount is frozen. At the end of each hand the player is credited or debited according to the results of the game and the amount of the wager.

The credit medium may be a debit card or a credit medium. However, preferably, the credit medium includes the hotel room key for the player, who is also a guest of the hotel associated with the casino. The initial credit balance can be selected by the guest when he registers at the hotel, and paid for at the time of registration by check, credit card, debit card, or cash. In addition to using the credit medium at the casino, the credit medium may also be used in slot machines placed throughout the hotel, as well as restaurants, newsstands, gift shops, boutiques, and the like associated with the hotel.

All casino games and slots are interfaced through a central computer system. A credit medium is issued by the casino, the hotel, or an off-site third party. The credit medium includes an initial value selected and paid for by the player, and a player identification number (PIN) for security. The player can add value to the credit medium at terminals throughout the casino. The system is also compatible with a credit or debit card.

For a stand-alone casino, the casino issues the credit medium to a player with a credit card and picture ID, such as a driver's license. Credit is withdrawn from the player's credit card and

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programmed into the credit medium.

For a casino that is part of a hotel, the credit medium is part of the guest's hotel room-key. The initial card value is selected and paid for by the guest upon hotel registration. The key-card combination enables the hotel to program an initial cash value into the key-card upon registration to encourage initial acceptance of the credit medium. For a stand-alone casino, the key portion of the key-card enables entry into the casino after the player has preregistered either off-site with third parties or with the casino.

Each player station at the gaming table includes an interactive monitor, a credit medium, and a credit-medium reader. The interactive monitor enables the player to communicate with the central computer.

To enter a game the player inserts his credit medium into a card reader at a player station. To make the system even more secure in the event the card is lost or stolen, a player identification number (PIN) is used which enables player identification prior to use of the credit medium. At the beginning of each hand, the player enters his bet. The bet is confirmed prior to the play of each game, that it does not exceed the card value. After all players have entered their bets, the bets are frozen, and the playing cards are dealt.

The system includes a sensing unit, preferably an optical scanner, disposed in the dealer's card rack and each playing card is scanned as it is dealt. Each player's hand is tabulated in the computer and the computer determines winners and losers. Each player's credit medium value is adjusted after each hand according to the amount of the bet and game results.

The player will enjoy faster and improved play, more playing options, and increased security as the credit medium replaces chips and cash. Players can also determine net expenditures anytime.

The dealers' job is greatly simplified, as he will no longer make change, tabulate card totals, pay winners and take chips from losers, and keep track of the chips in his register. All he will do is deal, collect cards, and monitor play.

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By improving game speed, the casino will be able to add extra playing positions at each table. By combining a credit-medium system, an optical scanner, and an automatic shuffler-distribution system, live dealers can be replaced. The only question is player acceptance.

In craps, an optical scanner reads the bottom surface of the dice to determine the roll, to sort the winners from the losers. In roulette, a sensor in the roulette wheel determines where the ball has stopped.

Some of the advantages of a credit medium include:

The time needed for the dealer to count and exchange chips is eliminated, thereby speeding up the game, adding more excitement for the players, and more profits for the casino.

Dealer errors in identifying and paying winners are eliminated.

Cashiers are replaced with automated stations, thereby reducing personnel costs and overhead.

The use of a credit medium throughout the casino will enable complete flexibility in the amount of the wager and anonymity in all gaming activities.

The player need not carry on his or her person any chips, cash, or any other fungible assets that may be attractive to a thief. The player has increased security with a credit medium having code words and other security access measures, since a thief or someone finding the card cannot use it, and even if a thief discovers the code words, the player can report the lost or stolen credit medium, which cannot thereafter be used by anyone else.

Some of the advantages of having the credit medium disposed as part of the room key include:

Card registration becomes a routine part of hotel registration, and is less intrusive than entering and confirming extensive background information.

The system is more secure and more flexible than having other types of registration, since driver's license identification and credit card identification can be verified by the hotel employee registering the guest. The hotel employee who registers the guest can also confirm identification, without the need for separate staff.

The hotel may want to add promotional play value as an incentive as part of a package to stay at the hotel and play at the casino.

Once the personal guest information is registered on the card key, it is locked in. The guest can subsequently purchase additional playing credit, if wanted.

However, the casinos also seek to attract local residents and guests of other hotels. Since these people are not staying at the hotel, some other form of credit medium is required. Also, for those using the hotel card key, they may need to purchase additional play on their hotel card keys, and doing so at the registration desk is simply not practical.

Some of the advantages of an optical scanner include:

Play will become much faster, since winners and losers can be identified immediately by the computer system.

The casino can change house rules in an efficient manner merely by advising the players and the centralized computer of the change in rules.

The casino can readily monitor the play of individual players, readily identifying players who count cards or use other systems.

Dealer errors, player cheating, and other irregularities can be fully monitored without the need for overhead cameras and mirrors.

In addition, there is considerable synergy in the system as more of the functions are automated.

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A credit medium system with player stations combined with a sensor that enables reading of the playing cards as dealt may enable the addition of several additional playing positions at each table.

Another embodiment involves using a credit medium system, an optical scanner, and an automatic shuffler-distribution system monitored by pit bosses for inexpensive play (say $2 to $10) to replace live dealers. Dealers would still be used for tables involving higher stakes.

For a more complete understanding of the advanced gaming system and method of the present invention, reference is made to the following detailed description and accompanying drawings in which the presently preferred embodiments of the invention are shown by way of example. As the invention may be embodied in many forms without departing from spirit of essential characteristics thereof, it is expressly understood that the drawings are for purposes of illustration and description only, and are not intended as a definition of the limits of the invention. Throughout the description, like reference numbers refer to the same component throughout the several views.

Brief Description of the Drawings

FIGURE 1A is a functional block diagram disclosing a first preferred embodiment of the system of the present invention for a hotel/casino involving off-site reservations, on-site registration, guest room access, guest account activity on-site, and guest check-out;

FIGURE 1B is a functional block diagram disclosing a second preferred embodiment of the system of the present invention for a stand-alone casino involving off-site registration through third parties, on-site registration, entry for pre-registered players, departure, and remote card usage;

FIGURE 2A is a schematic view showing the preferred embodiment of the system of the present invention relative to a blackjack table with six player stations each having an interactive monitor,

and the card rack relative to the table;

FIGURE 2B is a side elevational view of the optical scanner relative to the card rack of FIGURE 2A;

FIGURE 2C is an overhead elevational view of another embodiment of the present invention with an optical scanner disposed into each of the six player stations, and another optical scanner in the dealer station;

FIGURE 3 is a schematic representation of the preferred embodiment of the system of the present invention of FIGURE 1A, showing general interconnections between the hotel/resort computer, the casino computer, and individual computers for each separate casino function;

FIGURE 4 is a discloses a preferred embodiment of the credit-card security apparatus of the present invention, having an electronic room key disposed on along one edge, and a credit medium disposed along the opposing edge;

FIGURE 5 discloses a simplified block diagram of the gaming system of the present invention and the cooperative engagement between the credit medium and the player station through the casino computer;

FIGURE 6A is the first page of a schematic flowchart showing the gaming system of the present invention for initial clearance for a player playing blackjack using a credit medium and an interactive monitor;

FIGURE 6B is the second page of the schematic flowchart showing the logic sequence for the rest of the initial clearance for the player playing blackjack using the gaming system of the present invention;

FIGURE 6C is the third page of the schematic flowchart showing an initial logic sequence if the dealer has a possible blackjack and the insurance option for the players using the gaming system

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of the present invention;

FIGURE 6D is the fourth page of the schematic flowchart showing a logic sequence in the event that the dealer has a blackjack using the gaming system of the present invention;

FIGURE 6E is the fifth page of the schematic flowchart showing a logic sequence in the event that the individual player has a blackjack using the gaming system of the present invention;

FIGURE 6F is the sixth page of the schematic flowchart showing a logic sequence involving blackjack play, showing the player options of splitting a pair, doubling down, drawing a card, or standing pat using the gaming system of the present invention;

FIGURE 6G is the seventh page of the schematic flowchart showing a logic sequence for determining player skill in the blackjack game using the gaming system of the present invention;

FIGURE 6H is the eighth page of the schematic flowchart showing a logic sequence for completing the deal, where the dealer completes his hand as required by predetermined rules of play using the gaming system of the present invention;

FIGURE 6J is the ninth page of the schematic flowchart showing ta logic sequence to determine game outcome and crediting or debiting the player in accordance with his wager using the gaming system of the present invention;

FIGURE 7A is the first page of a schematic flowchart showing the gaming system of the present invention for initial clearance for a player playing roulette using a credit medium and an interactive monitor;

FIGURE 7B is the second page of the schematic flowchart showing the logic sequence for the rest of the initial clearance for the player playing roulette using the gaming system of the present invention;

FIGURE 7C is the third page of the schematic flowchart showing the logic sequence for spinning the wheel and reading the winning number using the gaming system of the present invention;

FIGURE 7D is the fourth page of the schematic flowchart showing the logic sequence for determining winners and losers, and the amount to be paid to the winners using the gaming system of the present invention;

FIGURE 8 is an overhead view of an interactive monitor and credit medium reader in the player station for playing blackjack;

FIGURE 9 is an overhead view of an interactive monitor and credit medium reader in the player station for playing roulette;

FIGURE 10 is a preferred embodiment shown in FIGURES 4 and 5 disclosing the functional block diagram and interrelationship of the various elements of the gaming system to the present invention;

FIGURE 11 is a preferred embodiment of a schematic flowchart disclosing the program logic for enabling the guest to use the security apparatus as a guest room key to gain access to his room; and

FIGURE 12 is a preferred embodiment of a functional block of a guest room key security system for use with the security apparatus of FIGURE 4.

Detailed Description of the Invention

FIGURE 1A discloses the system of the present invention, including a hotel central computer system and a casino computer system for use with a plurality of blackjack tables, roulette tables, and slot machines. The system is for use in resort hotels and in casinos in games of chance for

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play. The system of the present invention can be useful in all amenities associated with large resort hotels, including casino gambling (machines and tables), sports betting, room service, all hotel telephones, restaurants, lounges, entertainment and shows, arcade games, hotel shops, tour packages, and the like.

FIGURE 1B discloses a similar system for use in a casino that is not associated with a hotel or resort (a stand-alone casino). A functional block diagram is shown, including off-site registration by third parties, on-site registration, entry for pre-registered players, departure, and remote card usage. In a stand-alone casino, players are encouraged to register off-site in cooperation with third parties, such as travel agents, airlines, car rentals, hotel chains, and the like. The third party confirms player identification and issues the player a credit medium 20 off-site. The credit medium 20 enables the player to enter the casino. Entry into the casino is denied if there is any question concerning the validity of the credit medium 20. All persons without a credit medium 20 and all persons with invalid off-site registration must complete registration on-site.

FIGURE 3 discloses a preferred embodiment of the system of the present invention of the system of the present invention, which includes a hotel/resort central computer 11 of any suitable type, such as an IBM-compatible pentium 166. The central computer is interactively engaged with one or more casino computer systems 13 which can be a suitable type, such as an IBM-compatible pentium 166, which comprises a control console, a video monitor, and a keyboard. The casino computer 13 keeps track of historical data of activity. The casino computer system is interactively engaged with a plurality of additional computers, as for example game bank servers 62, maintenance management security 140, and cashier stations 145. The casino computer 13 also tracks inactive stations and machines that are not currently in use on the casino floor. Typically, one casino computer 13 is provided (see for example U.S. Patent No. 5,321,241). The casino computer 13 is interactively engaged with one or more gaming bank servers 62 (only one is shown in FIGURE 3), which may also be an IBM-compatible Pentium 166. Typically, one gaming bank server 62 is assigned to each type of activity (blackjack, slots, arcade games, etc.). Also, interactively engaged with the hotel/resort central computer 11 may be a guest purchases interface 150, and guest room key/security interface 110, as herein described.

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While the system of the present invention is applicable to essentially any game of chance (keno, craps roulette, poker, solitaire, bridge, hearts, and the like) , the game of blackjack will be used for purposes of illustration only. FIGURES 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, and 6J in combination disclose a logic flowchart of a preferred embodiment of the system of the present invention using a credit medium and the optical scanner 30 positioned relative to the card rack 28, but also includes a credit medium reader 50 for use with a credit medium 52 for each individual player for playing blackjack. As used herein, blackjack is considered a game of chance and skill, since the decisions that the player must make during hand require a knowledge of probability. In contrast, roulette is considered a game of pure chance, since no special knowledge is needed to play. There is nothing unique about these logic flowcharts, as one skilled in the art can design alternative logic paths.

FIGURES 6A and 6B generally disclose the clearance procedure for enabling players to enter the game by inserting their credit medium 52 and place wagers; FIGURES 6C and 6D generally disclose the logic surrounding buying insurance, and determining whether or not the dealer and the individual players have a blackjack; FIGURES 6E, 6F, and 6G generally disclose the logic involving player decisions (hitting, staying, doubling down, and splitting pairs) when neither the player nor the dealer have a blackjack; and FIGURES 6H and 6J generally being the logic involving completing the dealer's hand (if necessary), and determining winners and losers for all players not having blackjack, and adjusting the player's running balance accordingly.

Prior to play, each player inserts his personal credit medium 52 into the credit medium reader 50 associated with the player station 24. The credit medium has an initial credit balance. Each player station 24 preferably includes interactive selecting means to enable the player to enter a wager on the game outcome. After each player has selected his wager, the playing cards 26 are dealt. The computer tabulates each players' credit balance as associated with that player station 24 and that credit medium 52. During play of the game, the computer is able to track which player is active by monitoring the engagement by each player of his or her "stick" button, since each time a stick button is engaged, the next hand moves into the active position until the last hand is played, at which time, the dealer becomes the active hand, and draws if the holding is less than seventeen.

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For blackjack (sometimes referred to as "twenty-one" or "beat-the-dealer"), each player uses a credit medium 20 with which he acquires upon hotel registration, off-site registration through third parties, or on-site registration within the casino. He has access to a playing station 24 (data processing terminal) during the play at the blackjack table via the credit medium 20 and a card reader 12 disposed at the player station 24. At the beginning of each game, each player digitally selects the amount of his wager by use of an interactive keyboard on an interactive monitor. Once play begins, the credit medium 20 is locked in. At the end of each game the player is credited or debited with the amount of the wager.

FIGURES 2A and 2C disclose the advanced gaming system of the present invention for use at a blackjack table 22. The blackjack table 22 preferably includes six player stations 24, as is conventional for blackjack play, but as herein described can be readily expanded to include seven, eight or nine stations. Each station is associated with an individual player.

The playing cards 26 are randomly distributed relative to each other either by the dealer or in an automatic shuffling machine (not shown). When the cards are shuffled manually, usually four to six decks are used, and the cards are shuffled and positioned within a card rack 28, and individually dealt in sequence by the dealer. When an automatic shuffling machine is used, the playing cards 26 are gathered at the end of each hand and placed in one end of the machine, and playing cards 26 are withdrawn from the other end of the machine and distributed to the individual players and the dealer in sequence.

The sensor 30 reads the specific values of the playing cards 26 as they are dealt to the individual players and the dealer, as shown in FIGURE 2B. Preferably, the sensor 30 is a high speed optical scanner that is positioned in the card rack, and is an Agfa SelectScan Plus CCD Color Scanner. Alternatively, a sensor 30' may be positioned in the blackjack table 22 relative to each player station 24 and the dealer station 25, and the playing cards 26 are dealt face down, and read by each sensor 30'.

The specific values of the playing cards 26 as read by the optical scanner 30 and processed by

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a computer processor 11 for processing information relative to the specific values of the playing cards 26 read by the scanner 30. The rules of play for blackjack have already been programmed into the computer processor 11, along with the house rules. The computer 11 determines which of the individual players has won, lost, or tied, once play of the game has been completed.

Each player station 24 includes means for enabling each player to enter a wager amount relative to the blackjack game. The wager amount is confirmed prior to the play of the game, not being greater than the available credit balance. The computer processor 11 tabulates the resulting credit balance after the game has been completed. For example, if the player has a current running balance of $120, and wagers $20 and wins, the computer 11 adds the wager to the running credit balance at the end of the hand. Each player station 24 may also include means for entering decisions, a keypad 45, made by the player relative to the play of the game.

The computer 11 determines the game outcome based upon the information relative to the specific values of the gaming materials pertaining to the information as applicable to the definitive rules for play. When the gaming materials are playing cards, and the game is blackjack, there is no play of the playing cards 26, but rather the game outcome is simply determined by comparing each hand held by each individual player as against the cards dealt to the dealer. If the player splits pairs, there may be more than one hand for a player on any particular deal. Similarly, for poker there is no play of the cards, but rather the play involves wagering and determining when to stay and when to fold, so that the winner can be determined by comparing the playing cards 26 held by the individual player. When wild cards are used, the computer must be advised of which cards are wild prior to each hand. For craps, the winners and losers are determined simply by a roll of the dice, so that the dice comprise the gaming materials, and the value of the dice rolled is determined by using a sensing device, such as an optical scanner to read the bottom surface of each die to determine the specific value of the top surface, since the bottom and top surface will always add to seven (1-6, 2-5, 3-4).

The length of time that a credit medium 52 is engaged at each blackjack game can be readily determined. The time counter begins when the credit medium 52 is inserted, and the time counter stops when the credit medium 52 is withdrawn from play, when the individual player

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does not make a wager.

At the beginning of each hand, dealer ID is checked and a current running balance is entered into the computer if there is a change of dealers. Winnings and losses for individual players are also added to the dealer's running balance each hand, so that the casino can monitor how each dealer is doing, as a means of further checking for any irregularities during the play of the game.

To tabulate the net gain and losses of each player at each sitting, again refer to FIGURES 6A through 6J, where the player enters the game with an initial credit balance, either purchased from a credit charge station, or applied to the credit medium when the player registers at the hotel casino. At the end of each hand each player's running balance is adjusted according to the results of each game. When the player withdraws the credit medium, the initial credit balance is replaced by the current running balance.

Player usage of promotional advances may be accurately monitored by comparing the amount of the promotional advance as against the individual player's running balance which is updated at the beginning of each hand.

FIGURES 6F and 6G disclose one method to determine a skill level for an individual player during play of the blackjack game. At the end of each hand, the computer determines what the percentage of winning is had the player pursued the best line of play. The computer checks the play history for the hand to determine whether the best line of play was used. If so, the running total of the player skill level is equal to the running total of the best line of play and the player is batting 1.000. However, in those instances where the player does not use the best line of play, the probability of winning using the strategy that the player actually employed is compared to the probability of winning using the best line of play. Whether the player won or lost using his strategy is completely discounted.

The best line of play logic is also the mechanism for determining any irregular player wagering patterns, to determine if the player is perhaps using a system or counting cards. Each time that a player diverts from the best line of play, the player strategy is saved in the player history file

for later off-line analysis.

Net winnings and loses of the player at each game within the casino are determined by saving in a player history file the initial balance and the closing balance at each casino game. Player history files are maintained in the computer for all casino games, including slot machines.

FIGURES 7A, 7B, 7C, and 7D disclose a logic flowchart for playing roulette play using the preferred embodiment of the present invention of the system. The system employs both the credit medium with reader to enable a cashless and chipless system, and sensing means, to determine the game outcome. The logic path shown in FIGURES 7A and 7B is generally the clearance procedure for enabling players to enter the game by inserting their credit medium and place wagers, and FIGURE 7C and 7D contains the logic for spinning the roulette wheel, examining all bets to determine winners and losers, and adjusting all credit balances accordingly. FIGURES 7A and 7B are remarkably similar to FIGURES 6A and 6B, as the clearance procedure for a card game of chance and skill (blackjack) is essentially the same as the clearance procedure for a game not involving playing cards of pure chance (roulette) as hereinafter described.

There are a number of ways to determine the outcome by sensing means in a game of roulette. A simple mechanical switch is used (normally open). When the roulette wheel stops and the ball stops and is clearly positioned relative to the winning number, the weight of the ball will close the switch, and the computer monitors each of the thirty-eight positions until the closed switch is found.

U.S. Patent No. 5,431,309 (Kelley) discloses a card shuffling and dealing apparatus, the apparatus being designed for use in duplicate bridge, where numerous teams of players compete to achieve the highest score with identical hands of playing cards. Card shuffling machines have found increasing acceptance in casino blackjack play, where such machines minimize the amount of "downtime" between racks of cards, when the dealer must thoroughly shuffle four to six decks of playing cards. While the machine of the '309 Patent is designed for bridge, one can readily modify this design for blackjack play, whereas the machine not only thoroughly shuffles, but also

then after distributes the cards. When combined with a credit medium and sensing means, such a shuffling/dealing apparatus may be used whereby this system replaces a person shuffling cards, dealing cards, separating winners from losers, making change, collecting chips from losers and paying winners.

U.S. Patent No. 5,067,713 (Soules et al.) discloses a card shuffling apparatus using a special deck of coded playing cards, as for example a bar code, and included electro-optic reading means to identify the cards as dealt. While this device is also primarily designed for contract bridge play, one skilled in the art can readily redesign the shuffling and card reading apparatus as another alternative for shuffling and reading playing cards relative to the subject invention.

The system includes a plurality of the player stations 25 disposed relative to a gaming table, and each player station 24 is available for play by a player. Initially, the playing cards are shuffled thoroughly, either by the dealer or by an automatic shuffling machine. Each player, preferably, has a player station 24 available for play near him secured to the playing table, and a personal credit medium 20 which is engageable with the player station 24. Each player then inserts his credit medium 20 into the player station card reader 12, each player station 24 being engageable with the gaming table. Each credit medium 20 has an available credit balance stored therewithin prior to play to use the credit medium 20 (see FIGURE 5).

FIGURE 8 discloses a preferred embodiment of an interactive player station 24 for blackjack. Each player station 24 includes interactive selecting means 14 for making a wager on the game outcome (a keyboard). The wager amount is confirmed prior to the play of the game, not being greater than the available credit balance. After each player has selected his wager the playing cards are dealt. Each credit balance is continually tabulated within a casino computer system for that player station 24 and that credit medium 20, respectively.

FIGURE 9 discloses a preferred embodiment of an interactive player station for playing roulette. U.S. Patent 4,339,798 discloses interactive player stations designs for use for playing craps and keno.

Preferably, the available credit balance is not replaced on the credit medium 20 until the player decides to withdraw the credit medium 20 from the player station 24. A tabulation of a plurality of game results associated with the player at the gaming table is then inserted on the credit medium 20 replacing the previous available credit balance.

Generally in blackjack, once the game outcome has been decided the wager amount is added to or subtracted from the previous available credit balance. However, if the house takes a percentage from the top as is common in many casinos operated on Indian reservations, the calculation of the second cash value may be more complex.

It will be appreciated that for larger hotel complexes, additional casino computers 13 may be necessary to accommodate more players. The hotel central computer system 11 will also be interactively engaged to room service, security, reservations, registration, checkout, or additional servers similar to the casino computer system 13 may be used for each function.

The hotel central computer system 11 is also interactively engaged with phones, restaurants, and shops, which can also be direct connections or through IBM PC's. The casino computer system 13 is interactively engaged with cashier stations 145 each including a cashier terminal, which enable a player to increase or decrease the value of the available credit balance on the credit medium 20.

Activities at tables, slot machines, arcade games, in addition to sports betting and race betting which require repeated responses are preferably routed through the casino computer system 13 (see for example U.S. Patent 5,371,345). In the preferred embodiment as shown in FIGURES 1A and 3, the information from the individual units (cashier stations 145, gaming bank server 62, and maintenance management security unit 140, is transmitted to the casino computer 13). The casino computer 13 and the hotel computer 11 thereafter exchange information which is transmitted bach to the individual units through the casino computer 13. In another embodiment (not shown) the hotel computer 11 receives the information through the casino computer 13, but then feeds back information directly to the individual units.

Each guest is issued a unique house card key, which not only is useful for obtaining entry into the hotel guest room, but for eating, and other entertainment activities on the hotel premises. Each key has a PIN and individual available credit balance. Some guests may prefer to have no available credit balance, in which case the house card key is only used to gain access into the room. However, the guest may later decide to purchase credit for use on the hotel complex, which may be accomplished through card recharging machines located throughout the hotel.

FIGURE 4 discloses the preferred embodiment of the data containing apparatus 21 of the present invention, having a credit medium 20 disposed at one end, and an electronic guest room key 16 disposed at the opposing end thereof. The credit medium 20 includes a microprocessor 22 interactively engaged by data lines 24 to a number of non-volatile random access semiconductor memories 26 (see for example U.S. Patent No. 5,179,517). Microprocessor 22 is interactively engaged with an interface circuit 28 by a group of data and control lines 30. Communications to external devices is facilitated by a group of contacts 32 interactively engaged with the interface circuit 28. Preferably, these contacts 32 conform to an industry standard, such as ISO/DIS 78161/1 and 78161/2, and include contacts for chip select signals, clock input signals, a data input signal, a data output signal, a power supply input, a status input signal, a ground line, and a memory type signal.

The circuit elements 22, 26, and 28 can in effect function as a small computer system by, for example, accepting data and control signals from external devices connected to contacts 32, using the microprocessor 22 to process the data, reading and writing data into memory 26, and transmitting data and control signals via the interface circuit 28 to the external devices.

The circuit elements 22, 26, and 28 are mounted on a bottom sheet and covered or sealed within the credit medium 20 by a cover sheet, with a portion abutting the contacts 32 left open to provide access to the contacts 32.

Although the embodiment of the credit medium 20 has been described in terms of an IC card, other configurations or structures that provide a data memory along with a data processing capability can also be used (see also U.S. Patent Nos. 4,725,924; 4,727,726; 4,733,061; and

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4,764,666).

Use of the credit medium 20 with a player station 24 may be facilitated by an interface unit 40 secured within the housing of the player station 24. The interface unit 40 is secured to the player station 24. A read/write unit 42 receives the credit medium 20 via a slot configured in the housing of the player station 24. The read/write unit 42 includes contacts corresponding to the contacts of the credit medium 20 along with conventional signal interface and buffering circuitry (see FIGURE 10). Also, included in the interface unit 40 is a gaming unit processor 46 interactively engaged with the read/write unit 42 by data and control lines represented by line 48 and a random access memory 50 along with a read only memory 52 that contain the control instructions for the gaming unit processor 46. A clock-calendar circuit 53 is also interactively engaged with the gaming unit processor 46.

After the credit medium 20 is initiated, it is ready for use with the player stations 25. The player will insert the credit medium 20 into slot 12 of the read/write circuit 42 of the interface unit 40 as shown in FIGURE 10. The read/write circuit 42 is under the control of the processor 46 and causes the circuit to transmit to the credit medium processor 22 on the credit medium 20 the appropriate instructions so that the identifying date is transmitted to the processor 46. The credit medium processor 22 can encrypt using one of the NBS encryption standards the data being transmitted to the gaming unit processor 46, and the gaming unit processor 46 can in turn use a matching algorithm to encrypt the data.

Once the credit medium 20 has established communication with the interface unit 40 and been identified as a player type card, the interface unit 40 will make available to the player station 24 the available credit balance information. The information is transmitted via the machine interface 56 through a data bus 64 to the gaming bank server 62. To enable comprehensive player tracking information, as the player operates the player station 24, data representing game play is transmitted to the interface unit to memory in the credit medium 20.

Since a preferred embodiment of the invention is described within the context of a microprocessor-based blackjack table, the interface unit 40 also includes a machine element

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interface circuit 56 interactively engaged with the gaming unit processor 46 by data and control lines. The player station 24 is interactively engaged with the interface unit 40 to a gaming bank server microprocessor 62. The gaming bank server microprocessor 62 monitors the play of the game. The player station 24 also has a number of discrete signal sources that represent the status of the game for an individual player. Representing examples of status signals of the gaming table are player enters play, player enters bet, player buys insurance, player doubles down, player has blackjack, player wins, player ties dealer, dealer wins, player resets wager, and player ends play. The status signal sources are interactively engaged with the machine element interface 54 by a series of lines. The machine element interface 54 is interactively engaged with the gaming unit processor 46.

The interface unit 40 also includes a display 80 which is interactively engaged with the gaming unit processor 46 by a conventional set of data address and control lines represented by line 80.

Also, as shown in FIGURE 10, the data transfer system utilizes the gaming unit processor system 62 to perform general casino accounting functions which are transferred to the gaming bank server. The interface circuit 28 (see FIGURE 4) includes contacts for the transfer of data through a read/write circuit 42. In instances where a large number of like gaming tables or machines are being administered by a gaming bank server, the gaming bank server or servers being interactively engaged with the individual gaming processors through respective machine processor interfaces 56 and accompanying data bus 64. Preferably, centralized control of the gaming data and transactions is maintained. Accordingly, a data communication network, such as a local area network, is used to interactively engage the gaming processors to the gaming bank servers. A second local area network preferably interactively engages the gaming bank servers with the casino computer 13.

The credit medium 20 may be similar to a card bought at a public library for paying for copies or computer listings. The credit medium 20 such as a debit card, or a house card contains an available credit balance for play by the player throughout the casino.

Preferably, all stations that accept the credit mediums 20 are interactively engaged with the

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casino computer system 13. The casino computer system 13 has a file for all active players which includes personal identification numbers (PIN's), room numbers (if appropriate) and the available credit balance for each such player. For security reasons, it is preferred that the PIN is not stored on the card, but rather only in the main computer. When the card is inserted for play, the computer performs a number of security checks. The player enters a PIN which is verified against the PIN in the computer. Then the system confirms that the available credit balance on the card matches the available credit balance associated with the PIN and player stored in the computer. Finally, if the card is also a room key 16, it confirms that the room number is the same as the room number for that particular player.

Each player station 24 may also include means 16 for entering decisions made by the first player relative to the play of the game (draw, stick, double-down, or split pairs). This information may be entered by way of a digital keyboard, a touch-sensitive interactive television monitor, an interactive voice recognition system, or a mouse in combination with a computer-type monitor.

The credit medium 20, preferably, includes personal identification number, enabling player identification prior to use of the credit medium 20. Other personal identification means may include a fingerprint, a password, or a security code disposed within the credit medium 20, enabling player identification prior to enabling use of the credit medium 20.

Preferably, the credit medium 20 is the hotel guest key for the player, who is also a guest at the hotel associated with the casino. The available credit balance can be selected by the guest when he registers at the hotel, and paid for at the time of registration by check, credit card, debit card, or cash. In addition to using the credit medium 20 at the casino, the credit medium 20 may also be used in slot machines and gaming tables situated throughout the hotel, as well as restaurants, newsstands, gift shops, boutiques, and the like associated with the hotel.

The system is for use in casinos having large numbers of gaming tables. Some of the tables may be conventional, using chips and cash to accommodate players who prefer to gamble in a conventional manner. Some other tables will be like those described in the present invention, where the playing stations are compatible with house cards. The credit medium 20 is a hotel key

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for use of players staying in the hotel, and either debit cards or house cards for players not staying in the hotel. Still other gaming tables will enable players to use portable stations that are compatible with the table. The stations may either have electrical connections with the gaming tables or they may be wireless.

It is appreciated that player monitoring by the casino computer system 13 can only be accomplished at tables and machines where the credit medium 20 is used by the player. Accordingly, the hotel and the casino will encourage use of the credit medium 20 of the present invention by providing the player with promotional and play incentives to encourage players to try the system. It is believed that with the improved and faster play that the players will soon be comfortable with the system, and reverting to conventional play will be dull.

The player station 24 may be built into and integral with the gaming table, or the station may be portable and compatible with the gaming table. A portable station may even be wireless. The portable gaming stations will have all of the features of the gaming station that is integral with the gaming table.

The portable player station may also be initially engaged with a mechanical key, or the like, which is charged when the patron registers at the front desk with an available credit value, or the portable player stations can be borrowed and charged by employees of the casino, either for adding cash value to the station or for players who are not staying in the hotel associated with the casino.

Once the player has finished playing in the casino, he simply returns his credit medium 20 to a cashier or a desk clerk at check-out, wherein the available credit balance on the credit medium 20 is transferred directly to the player's debit card, or to a personal checking or savings account.

One embodiment of the invention involves a guest room key 16 on the same card as the credit medium 20 (see for example U.S. Patent No. 4,677,284) . FIGURE 11 discloses a preferred embodiment of a schematic flowchart disclosing the program logic for enabling the guest to use the guest room key 16 of the data containing apparatus 21 to gain access to his room. FIGURE

12 discloses a preferred embodiment of a functional block diagram of a guest room key 16, the operating codes of which are disposed on the data containing apparatus 21 opposite the credit medium 20.

An electronic key card has a set of data encoded on one end thereof. The lock includes a multi-level memory 122 with each level identified by an identification code. A combination code is stored at each memory level in memory. The set of data encoded on the key card comprises an identification code and a combination code. The data encoded on the guest room key 16 is read into the lock by a card reader 124. The lock 120 may perform a number of predefined functions, such as opening the lock, changing the codes in multi-memory, or erasing the codes in multi-memory. The predefined functions are stored in a function table 126 with each predefined function identified by a function code, which are also stored in the function table 126.

The lock includes a comparator 128 for comparing the inputs to each other. Power to the lock 120 is provided by a power source. The lock 120 includes an installation code memory 132 for storing an installation code. The installation code must be matched before a function may be performed. The control unit 136 controls the activity of all the electronic components of the lock 120 as described above, and is interactively engaged directly with the hotel/resort central computer 11.

The security system operation begins when the guest inserts the user key into the lock card-reader and the card reader reads the identification code. The control unit signals compare the key identification code to the code in the lock memory. If the identification codes do not match, the lock removes the power from the lock, except that necessary to maintain the data in memory. This sequence of events is termed "power down". After the lock performs the "power down" sequence, the operation of the security system is completed.

If the identification code on the end of the user key does match the lock identification code, control unit 27 signals a multi-level memory 36 to transmit the combination code at the memory level identified by the combination code from the key to the comparator. Control unit 27 further signals card reader 18 to transmit this combination code to the comparator. The combination

codes from the key and the lock are compared. If the two combination codes match, control unit 25 signals lock mechanism 33 to open. After signaling the lock mechanism, the control unit performs the power down sequence, completing the operation of the system.

It is critical that in order to maintain the integrity of the system to separate the hotel/resort central computer interface from the casino functions, so as to prevent hotel staff from gaining access to tracking casino gambling data for hotel guests on a routine basis. The only information that the front desk needs to know about casino guest data is available credit balance for the guest for purposes of check-out. In the event that the guest questions casino credit balance information during check-out, the guest can request such information directly from the system during check-out, perhaps by using his PIN, and the itemized statement can be reviewed with management on duty.

Another application for the system of the present invention includes cruise liners. The system is also useful in any hotel to improve security involving on-site charging to a room. In addition, the system may be used in any other controlled environment involving continual activity, or extraordinary expenses

The credit medium 20 is exchanged for Club-Card for players upon departure. The Club-Card enables "Express Registration" for future visits. Also, if guests can be encouraged to use the credit medium 20 for On-Site purchases and the Club-Card for Off-Site purchases, Hotels are able to monitor and cater to guest preferences.

While hotels can assemble lists of guests for future promotions without the credit mediums 20, only credit mediums 20 enable the Hotel to monitor guests' activities while on the premises to determine preferences, to customize services and to improve the quality of their next visit, including:

(a) Gambling Time/Betting Habits/Skill-Level/Games of Interest;

(b) Tastes in Music/TV/Movies/Live Entertainment;

(c) Eating and Drinking Habits; and

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(d) Internet Interest/International Market and News Interest/Secretarial Support.

Furthermore, it is evident that many other alternatives, modifications, and variations of the system, apparatus, and method of the present invention will be apparent to those skilled in the art in light of the disclosure herein. It is intended that the metes and bounds of the present invention be determined by the appended claims rather than by the language of the above specification, and that all such alternatives, modifications, and variations which form a conjointly cooperative equivalent are intended to be included within the spirit and scope of these claims.

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CLAIMS

1. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

engaging the credit medium with the credit medium reader

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance; and

calculating a total time the individual player is gambling at each game in the casino.

2. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

engaging the credit medium with the credit medium reader

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance

determining net winnings and loses of the individual player.

3. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

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engaging the credit medium with the credit medium reader;

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance; and

tabulating a total amount wagered by the individual player at each game within the casino.

4. A system with playing cards for use in a card game, the game having definitive rules of play and a game outcome determined after play is completed, the system comprising:

sensing means for reading specific values of the playing cards, the sensing means being positionable relative to the table; and

computer means for processing information relative to the specific values of the playing cards as read by the sensing means, the computer means enabling the casino to monitor the play of the card game.

5. A method for use in a game involving gaming materials for play relative to a gaming table, the game of chance having definitive rules of play and a game outcome determined after play is completed, the game involving gaming materials for use during play, the method comprising:

reading specific values of the gaming materials during the play of the game by sensing means; and

processing information relative to the specific values of the gaming materials by computer means, enabling computer monitoring of the play of the game.

6. A system for use in games for play in a casino, the system comprising:

a credit medium reader enabling the player to wager relative to each game with a credit medium, each credit medium being readable by the credit medium readers; and

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a computer system cooperatively engageable with the credit medium readers. the wager information being forwarded to the computer system for processing, the computer system tabulating a total amount wagered by the individual player at each game within the casino, and determining net winnings and loses of the individual player.

7. A gaming method for use in a gambling casino. the game having definitive rules of play and a game outcome being determined after play has been completed, the gaming method comprising:

(a) identifying an individual player engaged in a game to a computer system, the game involving interaction between the player and another person, the game involving both chance and skill, the player identification enabling the individual player to access a credit balance which enables wagering upon the game outcome;

(b) reading the values of the gaming materials with a sensing unit, the sensing unit being positioned relative to a gaming table, the sensing unit enabling reading of specific values of the gaming materials in any game unit to determine game outcome, the sensing information being processed relative to the computer system; and

(c) enabling the individual player to enter information in the one game relative to gaming strategy with an interactive monitor, the interactive monitor being engaged with the computer system;

wherein the specific values information and the gaming strategy information collected relative to the identification of the player is processed, and enables an automatic adjustment through the computer system of the credit balance of the individual player depending upon the outcome of the one game.

8. A gaming system for use relative to a specific type of game in a gambling casino, the specific type of game having definitive rules of play and a game outcome being determined after play of each game unit has been completed, the gaming method comprising:

(a) identification means for use by an individual player engaged in the specific type of game, the specific type of game involving interaction between the individual player and another person, the identification means being processed relative to a computer system, the identification means enabling the casino to have direct access to a credit balance for the individual player which enables the individual player to wager upon the game outcome;

(b) a sensor unit for monitoring information relative to the value of the gaming materials relative to the game outcome of each game unit, the sensor being positionable relative to the gaming table enabling reading of specific values of the gaming materials in any game unit, the sensing information being processed relative to the computer system;

(c) an interactive monitor enabling the individual player to enter decision information automatically concerning gaming strategy relative to the game outcome of each game unit, the decision information being processed relative to the computer system,

wherein computer system processes the sensor information and the decision information and thereafter modifies the credit balance automatically for the individual player depending upon the game outcome.

9. A gaming system for use relative to a specific type of game in a gambling casino, the specific type of game having definitive rules of play and a game outcome being determined after play of each game unit has been completed, the gaming method comprising:

(a) a sensor unit for monitoring information relative to the value of the gaming materials relative to the game outcome of each game unit, the sensor being positionable relative to the gaming table enabling reading of specific values of the gaming materials in any game unit, the sensing information being processed relative to the computer system; and

(b) an interactive monitor enabling the individual player to enter decision information

automatically concerning gaming strategy relative to the game outcome of each game unit, the decision information being processed relative to the computer system;

wherein computer system processes the sensor information and the decision information and thereafter determines automatically the game outcome.

10. A security apparatus having the general shape of a credit card, the apparatus being useful to an individual, the apparatus comprising:

a key for cooperative engagement with a lock, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification; and

a credit medium having a credit balance associated therewith, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer.

11. A security apparatus being useful to an individual in a hotel for access and credit, the apparatus comprising:

a key for cooperative engagement with a lock, the lock being engageable with a room associated with the hotel, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification, the key combination being programmable by a computer; and

a credit medium having a credit balance associated therewith, the credit medium being useable within businesses associated with the hotel, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer.

wherein the credit medium is given to the individual upon registration with the hotel.

12. A security apparatus being useful to an individual for access and credit, the apparatus comprising:

a key for cooperative engagement with a lock, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification; and

a credit medium having a credit balance associated therewith, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer;

wherein the key is disposed along one edge of the security apparatus and the credit medium is disposed along a different edge of the security apparatus.

AMENDED CLAIMS
[received by the International Bureau on 6 August 1997 (06.08.97); new claims 13-24 added; remaining claims unchanged (11 pages)]

1. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

engaging the credit medium with the credit medium reader

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance; and

calculating a total time the individual player is gambling at each game in the casino.

2. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

engaging the credit medium with the credit medium reader

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance

AMENDED SHEET (ARTICLE 19)

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determining net winnings and loses of the individual player.

3. A method for use in a casino having a plurality of table games for play by an individual player, the individual player having a credit medium which is engageable with a credit medium reader, the credit medium reader being disposed relative to the gaming table, the method comprising:

engaging the credit medium with the credit medium reader;

selecting an amount to be wagered on a gaming unit, the amount being less than the credit balance; and

tabulating a total amount wagered by the individual player at each game within the casino.

4. A system with playing cards for use in a card game, the game having definitive rules of play and a game outcome determined after play is completed, the system comprising:

sensing means for reading specific values of the playing cards, the sensing means being positionable relative to the table; and

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computer means for processing information relative to the specific values of the playing cards as read by the sensing means, the computer means enabling the casino to monitor the play of the card game.

5. A method for use in a game involving gaming materials for play relative to a gaming table, the game of chance having definitive rules of play and a game outcome determined after play is completed, the game involving gaming materials for use during play, the method comprising:

reading specific values of the gaming materials during the play of the game by sensing means; and

processing information relative to the specific values of the gaming materials by computer means, enabling computer monitoring of the play of the game.

6. A system for use in games for play in a casino, the system comprising:

a credit medium reader enabling the player to wager relative to each game with a credit medium, each credit medium being readable by the credit medium readers; and

a computer system cooperatively engageable with the credit medium readers, the wager information being forwarded to the computer system for processing, the computer system

tabulating a total amount wagered by the individual player at each game within the casino, and determining net winnings and loses of the individual player.

7. A gaming method for use in a gambling casino, the game having definitive rules of play and a game outcome being determined after play has been completed, the gaming method comprising:

(a) identifying an individual player engaged in a game to a computer system, the game involving interaction between the player and another person, the game involving both chance and skill, the player identification enabling the individual player to access a credit balance which enables wagering upon the game outcome;

(b) reading the values of the gaming materials with a sensing unit, the sensing unit being positioned relative to a gaming table, the sensing unit enabling reading of specific values of the gaming materials in any game unit to determine game outcome, the sensing information being processed relative to the computer system; and

(c) enabling the individual player to enter information in the one game relative to gaming strategy with an interactive monitor, the interactive monitor being engaged with the computer system;

wherein the specific values information and the gaming strategy information collected relative to the identification of the player is processed, and enables an automatic adjustment

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through the computer system of the credit balance of the individual player depending upon the outcome of the one game.

8. A gaming system for use relative to a specific type of game in a gambling casino, the specific type of game having definitive rules of play and a game outcome being determined after play of each game unit has been completed, the gaming method comprising:

(a) identification means for use by an individual player engaged in the specific type of game, the specific type of game involving interaction between the individual player and another person, the identification means being processed relative to a computer system, the identification means enabling the casino to have direct access to a credit balance for the individual player which enables the individual player to wager upon the game outcome;

(b) a sensor unit for monitoring information relative to the value of the gaming materials relative to the game outcome of each game unit, the sensor being positionable relative to the gaming table enabling reading of specific values of the gaming materials in any game unit, the sensing information being processed relative to the computer system;

(c) an interactive monitor enabling the individual player to enter decision information automatically concerning gaming strategy relative to the game outcome of each game unit, the decision information being processed relative to the computer system,

wherein computer system processes the sensor information and the decision information and thereafter modifies the credit balance automatically for the individual player depending upon the game outcome.

9. A gaming system for use relative to a specific type of game in a gambling casino, the specific type of game having definitive rules of play and a game outcome being determined after play of each game unit has been completed, the gaming method comprising:

(a) a sensor unit for monitoring information relative to the value of the gaming materials relative to the game outcome of each game unit, the sensor being positionable relative to the gaming table enabling reading of specific values of the gaming materials in any game unit, the sensing information being processed relative to the computer system; and

(b) an interactive monitor enabling the individual player to enter decision information automatically concerning gaming strategy relative to the game outcome of each game unit, the decision information being processed relative to the computer system;

AMENDED SHEET (ARTICLE 19)

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wherein computer system processes the sensor information and the decision information and thereafter determines automatically the game outcome.

10. A security apparatus having the general shape of a credit card, the apparatus being useful to an individual, the apparatus comprising:

a key for cooperative engagement with a lock, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification; and

a credit medium having a credit balance associated therewith, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer.

11. A security apparatus being useful to an individual in a hotel for access and credit, the apparatus comprising:

a key for cooperative engagement with a lock, the lock being engageable with a room associated with the hotel, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification, the key combination being programmable by a computer; and

a credit medium having a credit balance associated therewith, the credit medium being useable within businesses associated with the hotel, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer.

wherein the credit medium is given to the individual upon registration with the hotel.

12. A security apparatus being useful to an individual for access and credit, the apparatus comprising:

a key for cooperative engagement with a lock, the key having a combination and the lock having a combination, the key enabling entry relative to the lock when the key identification is compatible with the lock identification; and

a credit medium having a credit balance associated therewith, the credit balance being available to the individual for purchases, the value of the credit balance on the credit medium being programmable by a computer;

wherein the key is disposed along one edge of the security apparatus and the credit medium is disposed along a different edge of the security apparatus.

BNSDOCID: <WO 9738366A1_I_>

13. A security apparatus comprising:

a key having a security access code that is programmable, the key being engageable with a lock to gain access to a secure area within the complex, the key enabling entry through the lock when the security access code is compatible with the lock, and

a credit medium having a credit balance which is programmable, the credit medium enabling a purchase to be made within the complex, the amount of the credit balance being diminished upon completion of the purchase, the amount of the credit balance being increased when value is added to the credit balance,

whereby the credit balance and the security access code are preprogrammed for use in the complex.

14. A security apparatus for use within a complex, the security apparatus comprising:

a key being engageable with a lock to gain access to a secure area of the complex, and

a credit medium having a credit balance which is programmable, the credit medium enabling a purchase to be made within the complex, the amount of the credit balance being diminished upon completion of the purchase, the amount of the credit balance being increased when value is added to the credit balance.

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15. The security apparatus of Claim 14, further comprising a preprogrammed identifier for security purposes that will enable user identification prior to access to the credit balance.

16. The security apparatus of Claim 14, wherein the credit medium is engageable with a card reader enabling play in a gambling casino.

17. The security apparatus of Claim 14, wherein the key enables access into a hotel room.

18. The security apparatus of Claim 14, wherein the key has a security access code that is programmable, the key being capable of opening a lock when the security access code is compatible with the lock.

19. The security apparatus of Claim 14, wherein the key is issued under authorization of the complex,

20. The security apparatus of Claim 14, wherein the security apparatus is issued to the user upon on-site registration into the complex.

21. The security apparatus of Claim 14, wherein the security apparatus is issued to the user upon remote registration for use in the complex.

BNSDOCID: <WO___9738366A1_I_>

22. The security apparatus of Claim 14, wherein the security apparatus is essentially in the shape of a card.

23. A sensing apparatus for use in a card game within a gambling casino, the sensing apparatus comprising:

a card rack for retaining playing cards for distribution in the card game; and

a sensor positioned relative to the card rack, the sensor enabling individual values of the playing cards to be identified as the playing cards are distributed in the card game, the sensor enabling the individual values of the playing cards to be stored and processed.

24. A sensing apparatus for use in a gambling casino, the sensing apparatus comprising:

a shuffling mechanism for housing multiple decks of playing cards for distribution in a card game, the mechanism enabling sequencing of the playing cards to be rearranged randomly prior to distribution; and

a sensor positioned relative to the shuffling machine, the sensor enabling individual values of the playing cards to be identified as the playing cards are distributed in the card game, the sensor enabling the individual values of the playing cards to be stored and processed.

STATEMENT UNDER ARTICLE 19

Claims 13 through 24 are new claims. Each of these claims is supported by the description and drawings in the International Application as originally filed. Applicant earnestly and sincerely believes that none of the new claims goes beyond the scope of the description and drawings originally filed and that no new matter has been added to this International Application with the addition of claims 13 through 24.

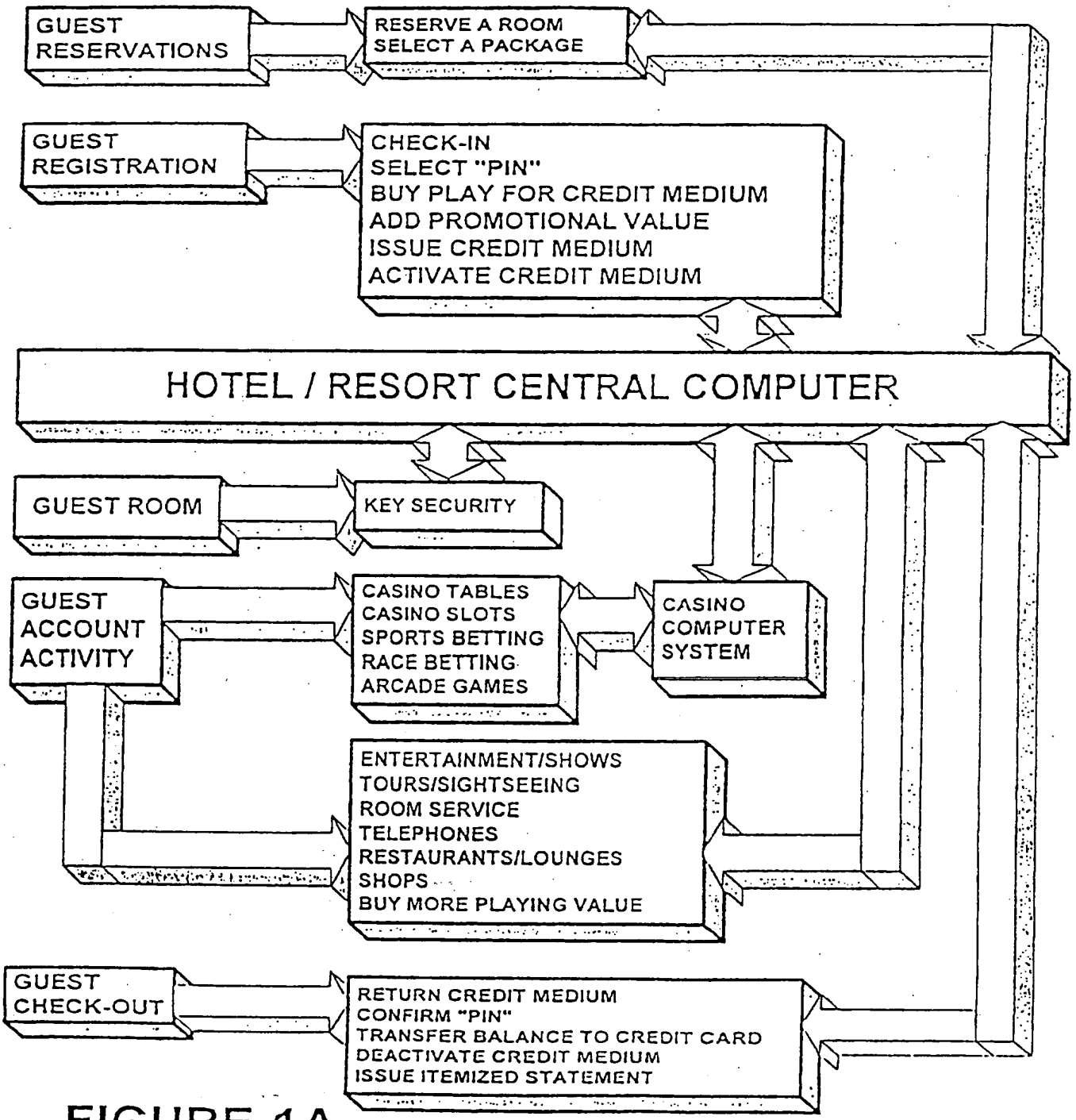
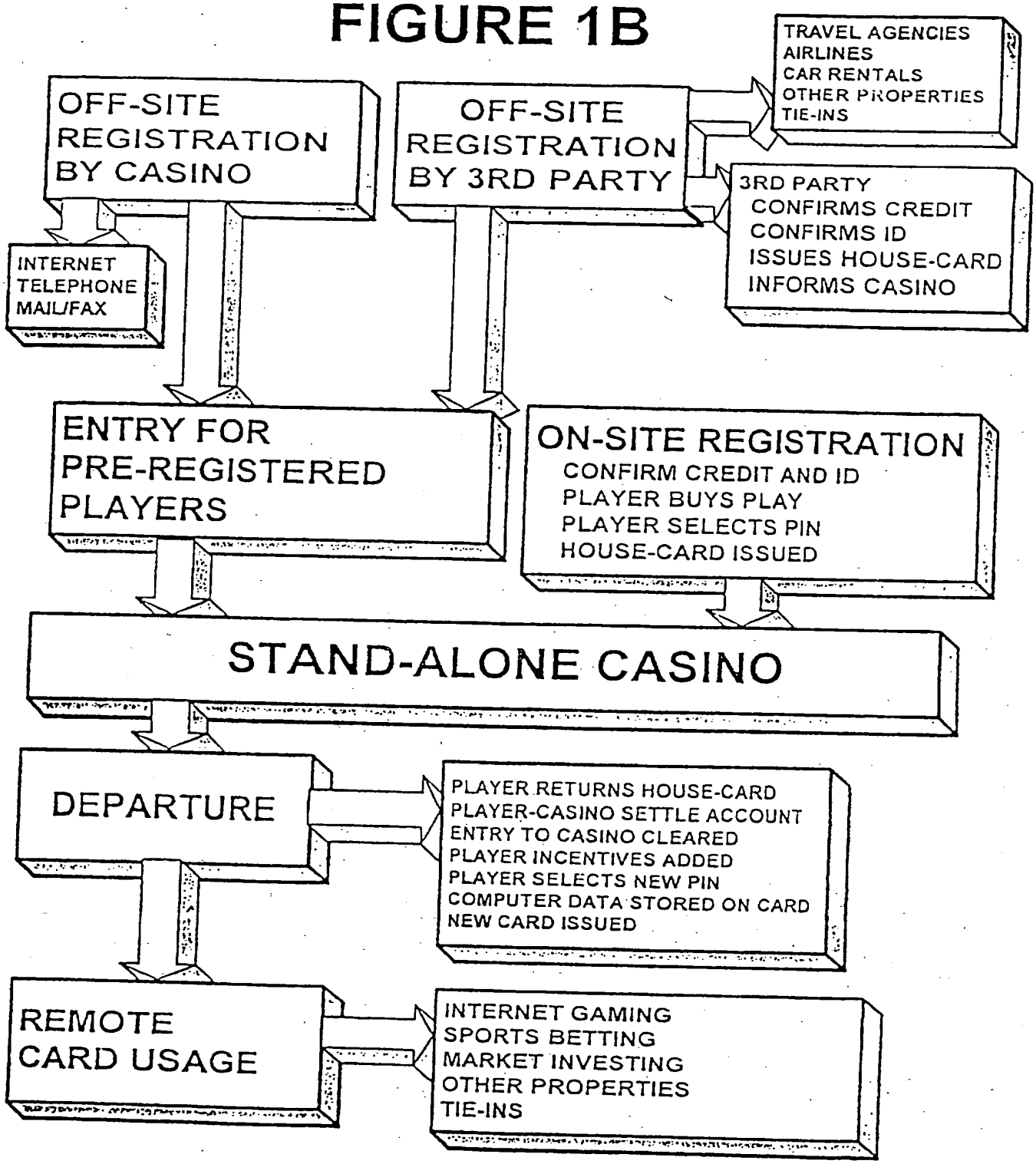

GUEST RESERVATIONS
RESERVE A ROOM
SELECT A PACKAGE
GUEST REGISTRATION
CHECK-IN
SELECT "PIN"
BUY PLAY FOR CREDIT MEDIUM
ADD PROMOTIONAL VALUE
ISSUE CREDIT MEDIUM
ACTIVATE CREDIT MEDIUM
HOTEL / RESORT CENTRAL COMPUTER
GUEST ROOM
KEY SECURITY
GUEST ACCOUNT ACTIVITY
CASINO TABLES
CASINO SLOTS
SPORTS BETTING
RACE BETTING
ARCADE GAMES
CASINO COMPUTER SYSTEM
ENTERTAINMENT/SHOWS
TOURS/SIGHTSEEING
ROOM SERVICE
TELEPHONES
RESTAURANTS/LOUNGES
SHOPS
BUY MORE PLAYING VALUE
GUEST CHECK-OUT
RETURN CREDIT MEDIUM
CONFIRM "PIN"
TRANSFER BALANCE TO CREDIT CARD
DEACTIVATE CREDIT MEDIUM
ISSUE ITEMIZED STATEMENT

FIGURE 1A

FIGURE 1B



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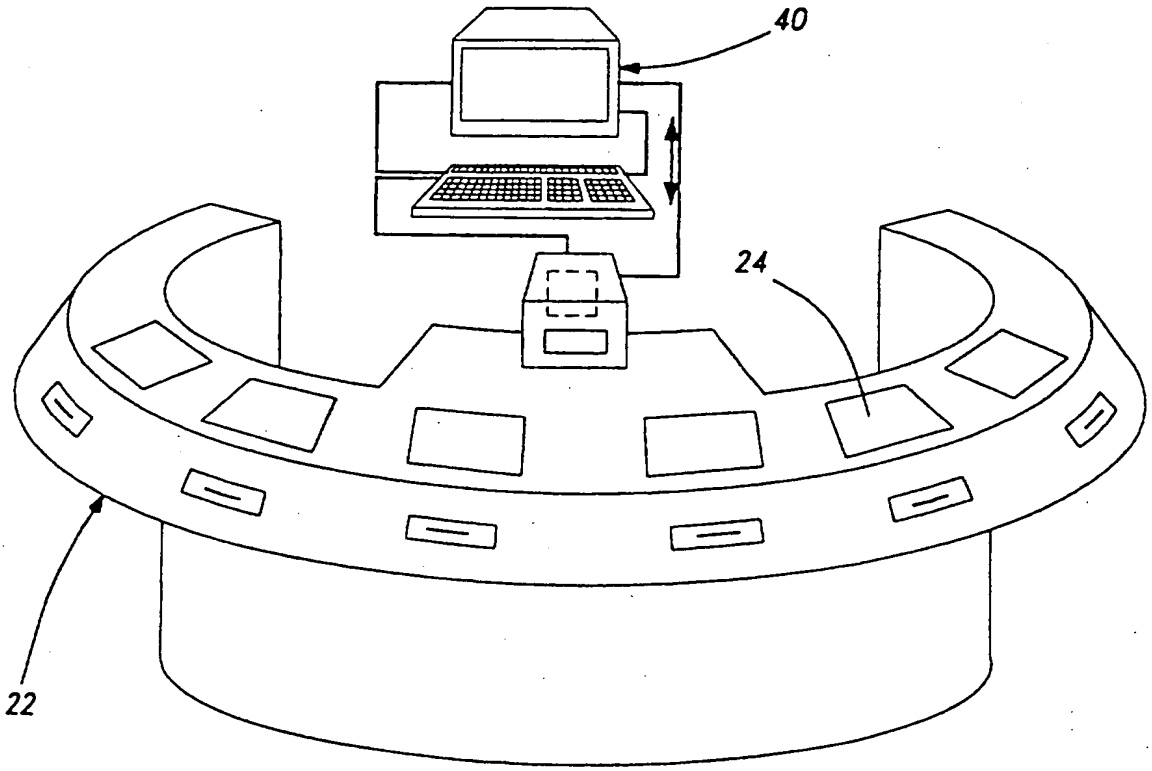

FIGURE 2A

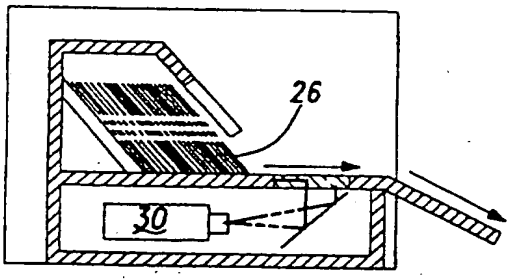

FIGURE 2B

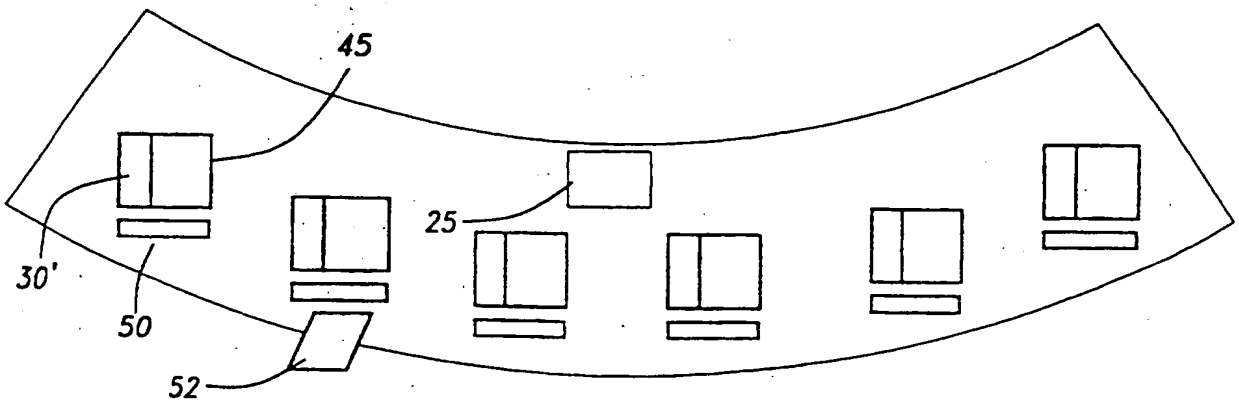

FIGURE 2C

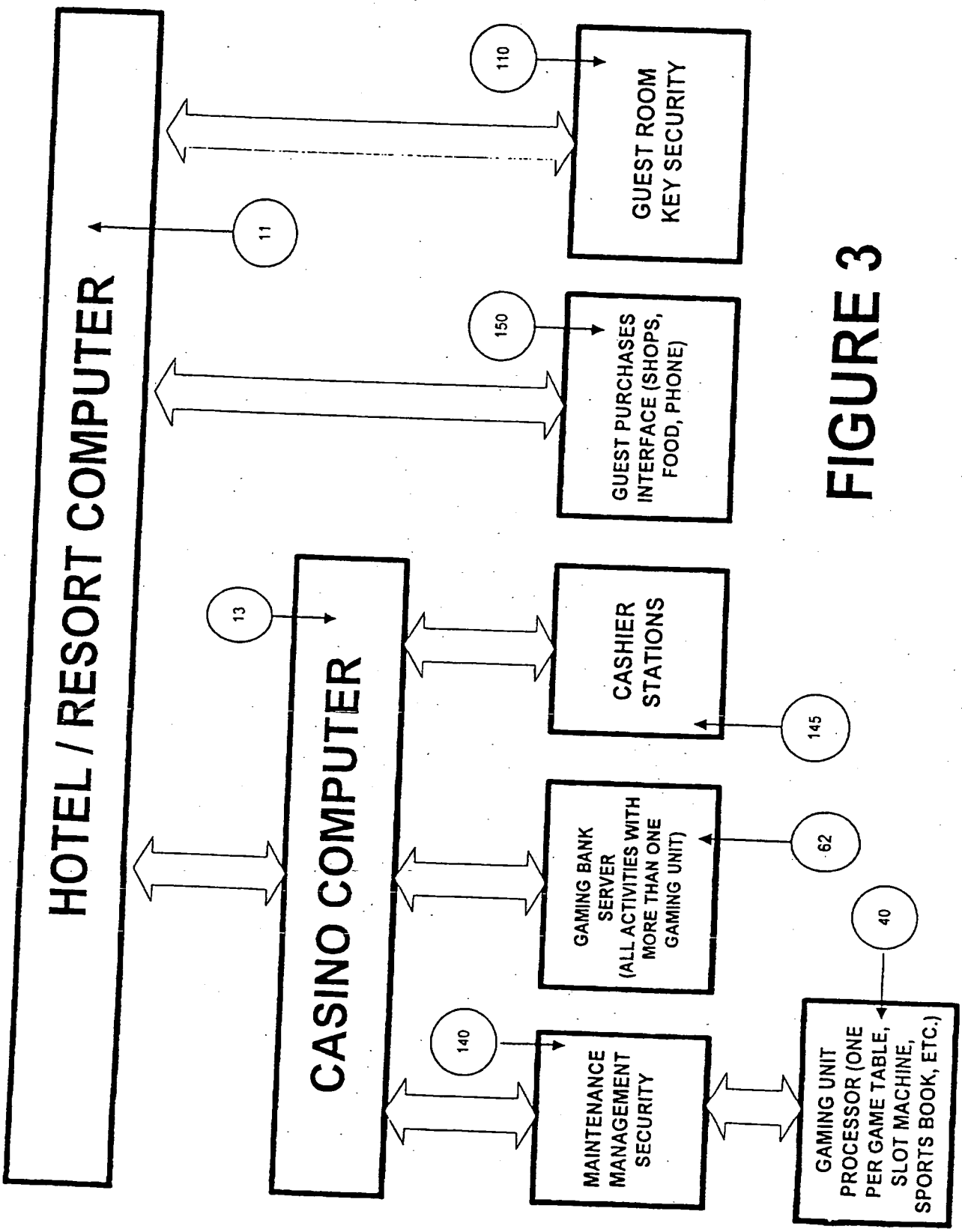

FIGURE 3

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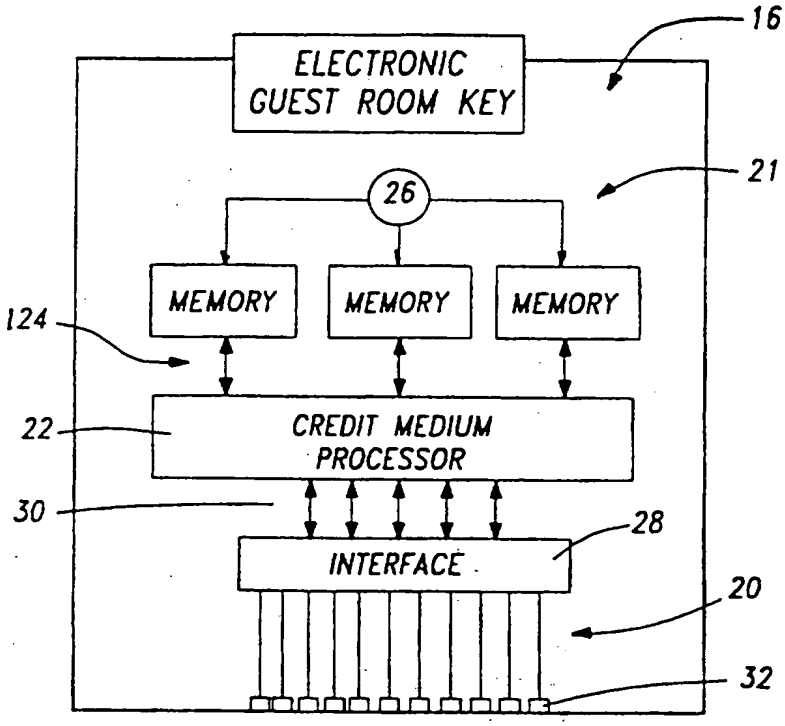

FIGURE 4

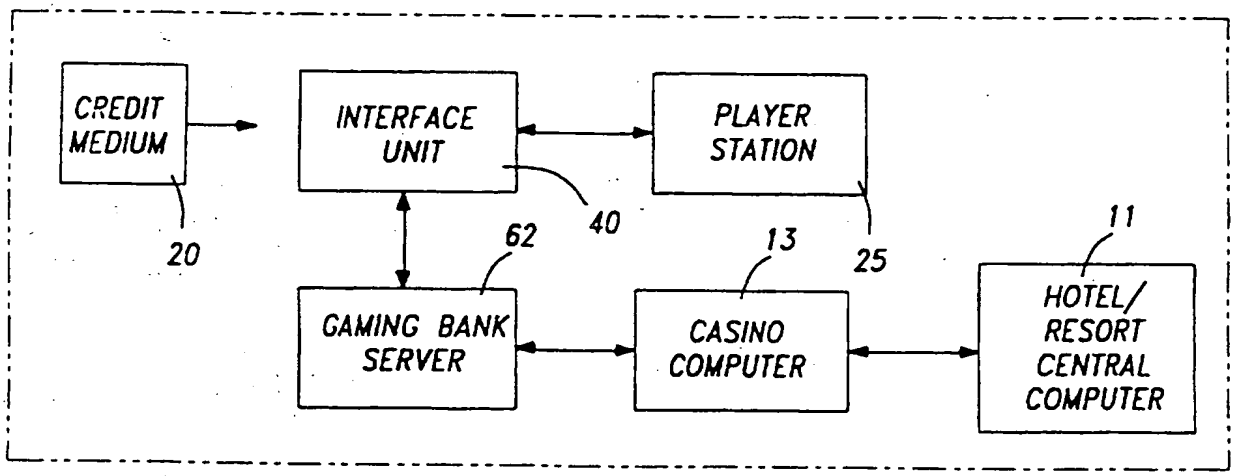

FIGURE 5

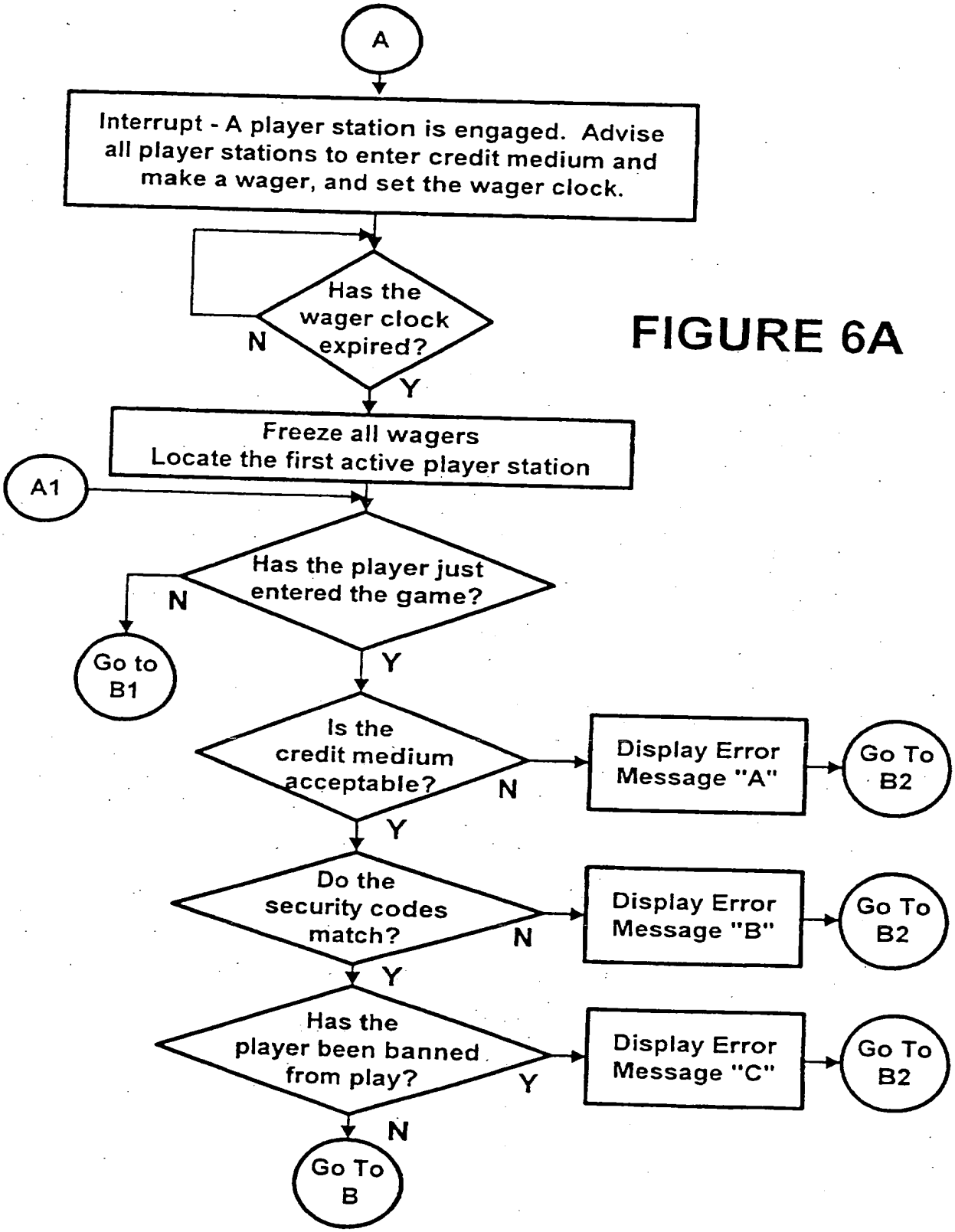
A
Interrupt - A player station is engaged. Advise all player stations to enter credit medium and make a wager, and set the wager clock.
Has the wager clock expired?
N
Y
Freeze all wagers
Locate the first active player station
A1
Has the player just entered the game?
N
Go to B1
Y
Is the credit medium acceptable?
N
Display Error Message "A"
Go To B2
Y
Do the security codes match?
N
Display Error Message "B"
Go To B2
Y
Has the player been banned from play?
Y
Display Error Message "C"
Go To B2
N
Go To B

FIGURE 6A

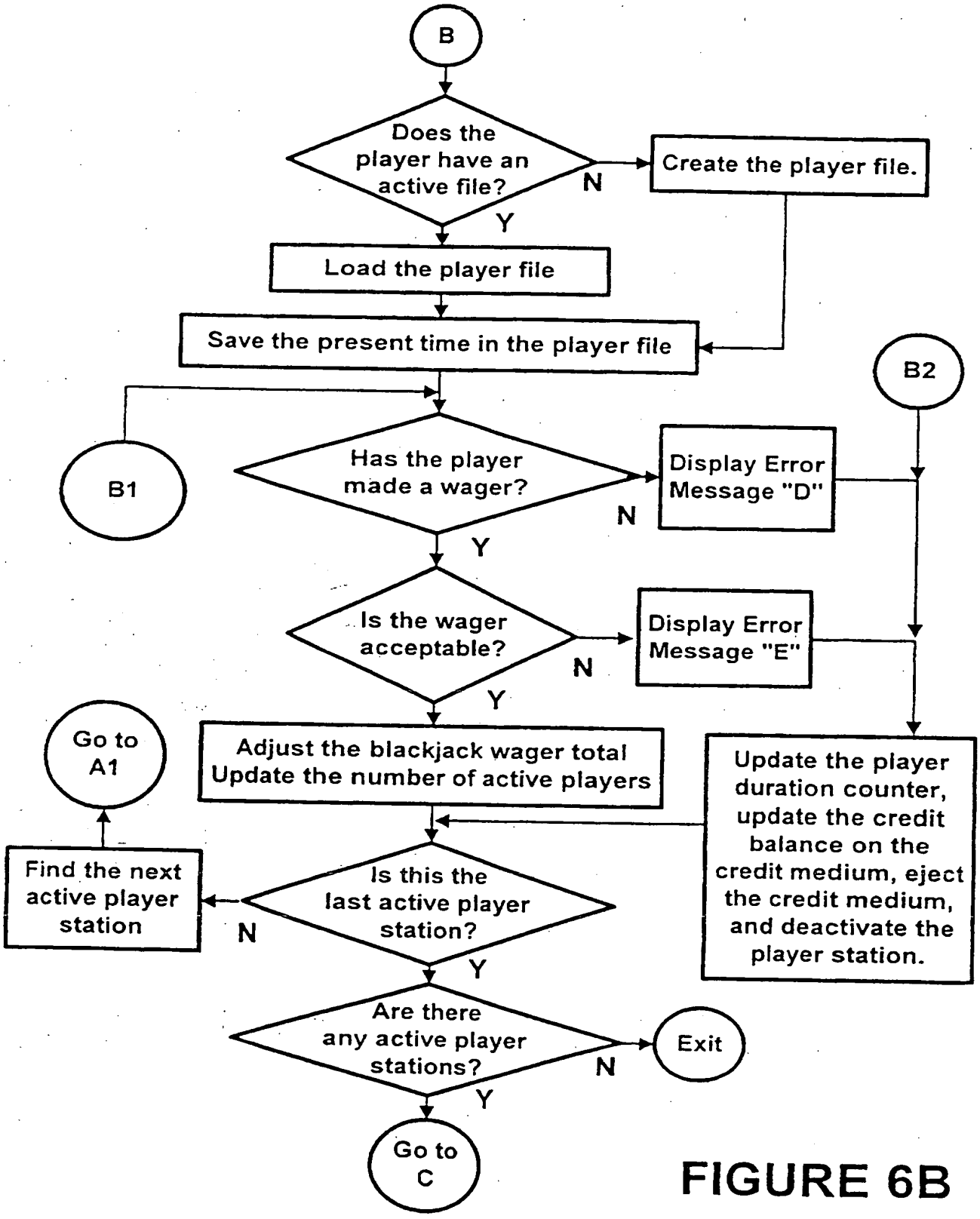
B
Does the player have an active file?
N
Create the player file.
Y
Load the player file
Save the present time in the player file
B2
B1
Has the player made a wager?
Display Error Message "D"
N
Y
Is the wager acceptable?
Display Error Message "E"
N
Y
Go to A1
Adjust the blackjack wager total
Update the number of active players
Update the player duration counter, update the credit balance on the credit medium, eject the credit medium, and deactivate the player station.
Find the next active player station
Is this the last active player station?
N
Y
Are there any active player stations?
Exit
N
Y
Go to C

FIGURE 6B

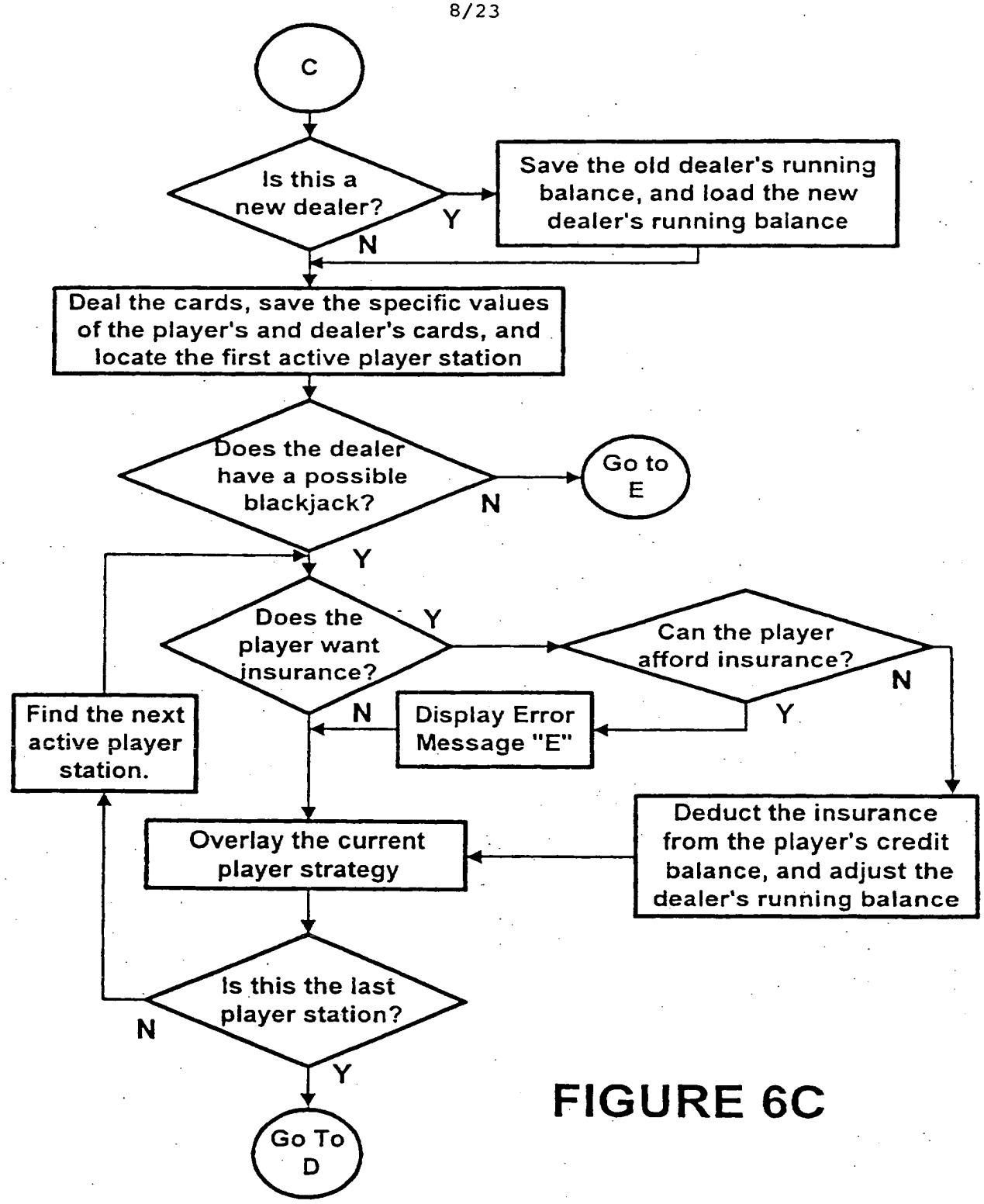

FIGURE 6C

BNSDOCID: <WO 9738366A1 I >

FIGURE 6D

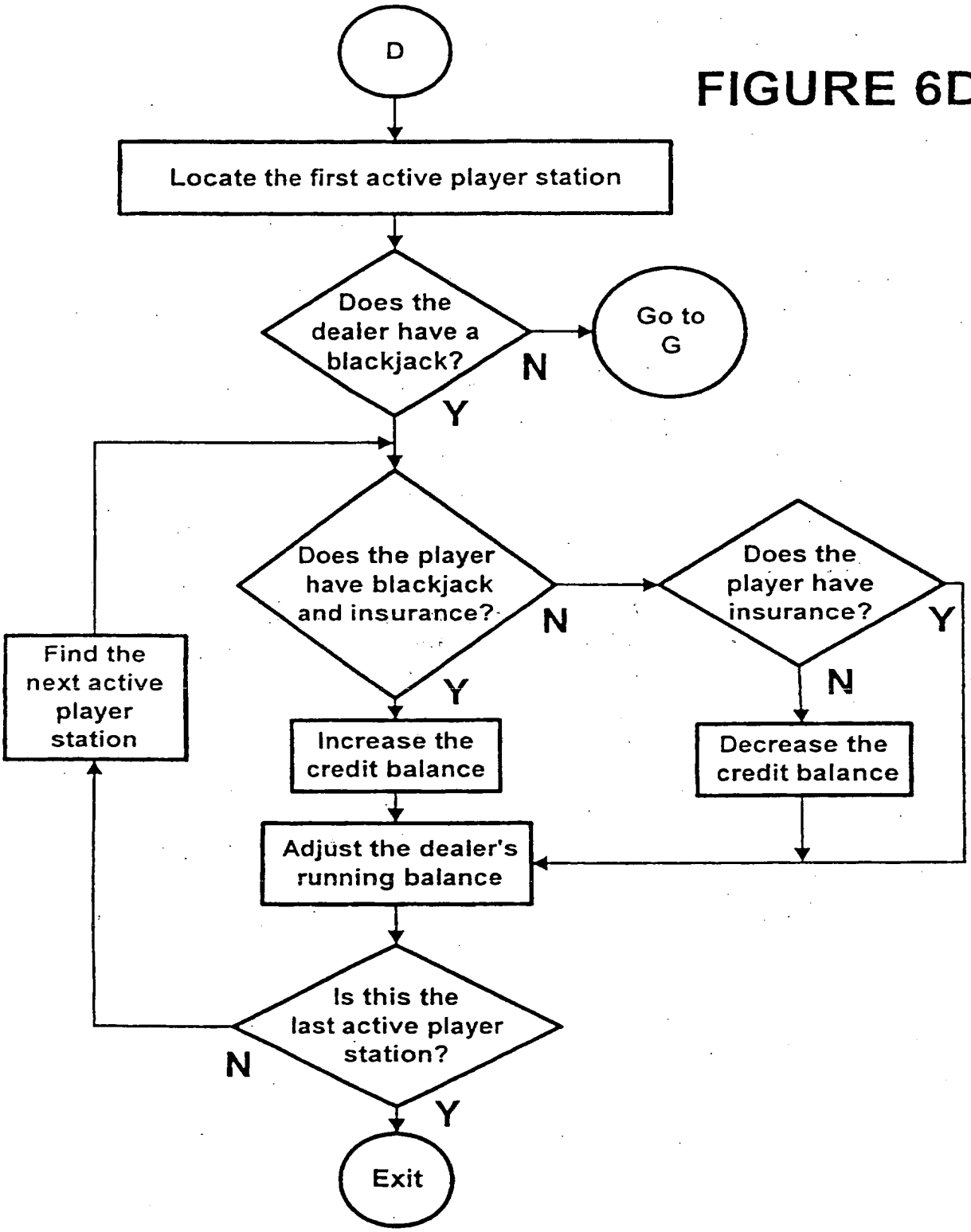
D
Locate the first active player station
Does the dealer have a blackjack?
N
Go to G
Y
Does the player have blackjack and insurance?
N
Does the player have insurance?
Y
N
Y
Find the next active player station
Increase the credit balance
Decrease the credit balance
Adjust the dealer's running balance
Is this the last active player station?
N
Y
Exit

FIGURE 6E

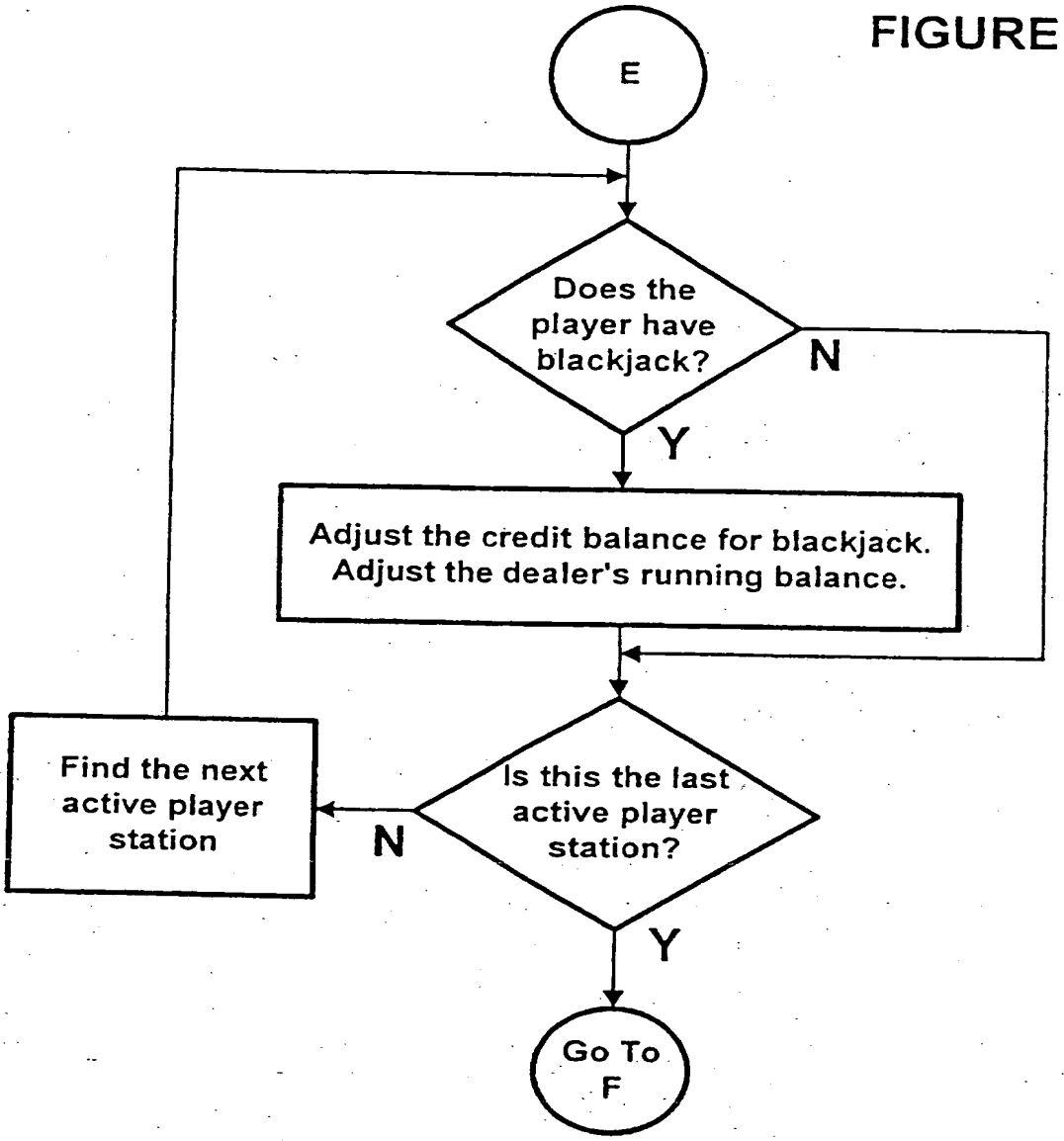

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FIGURE 6F

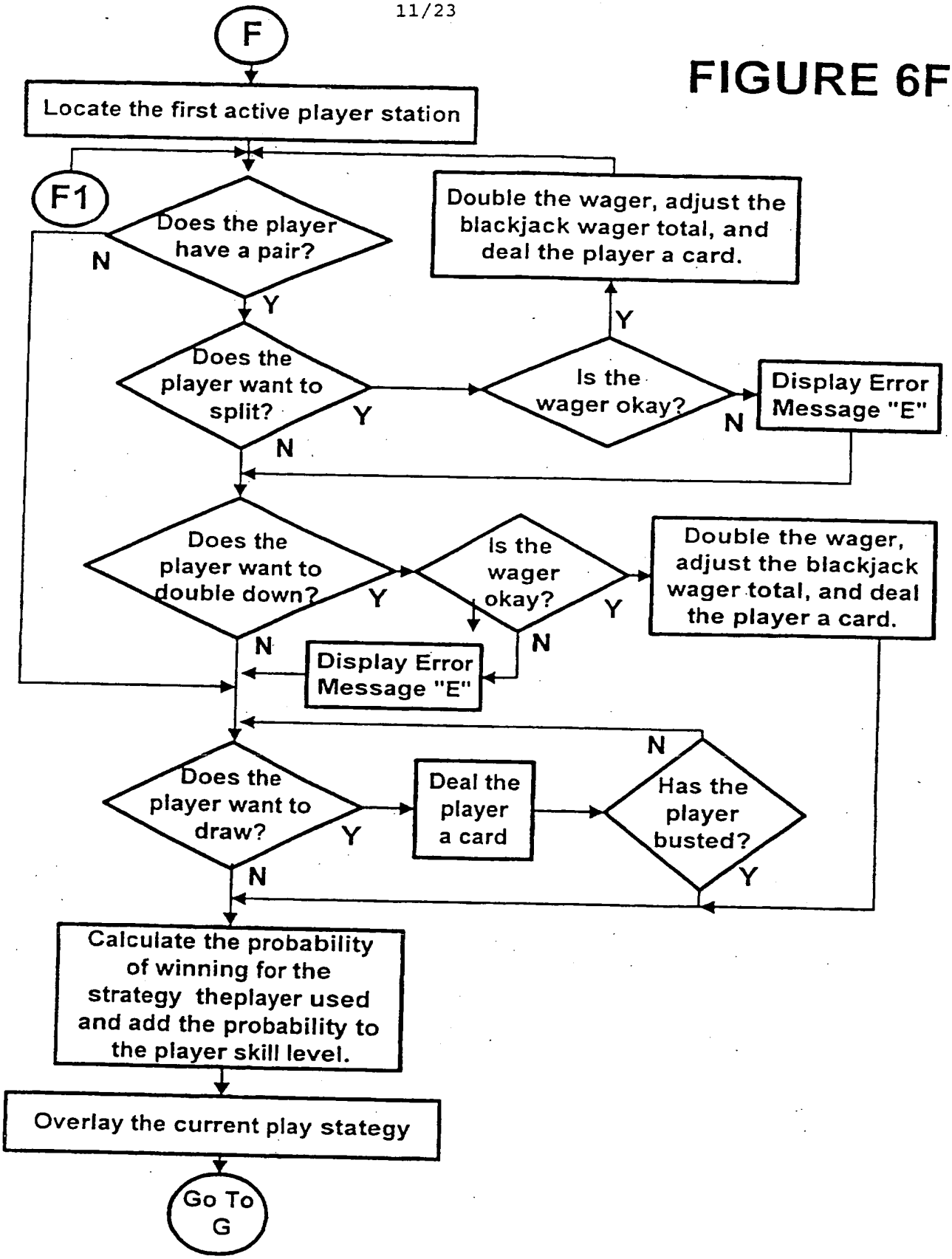
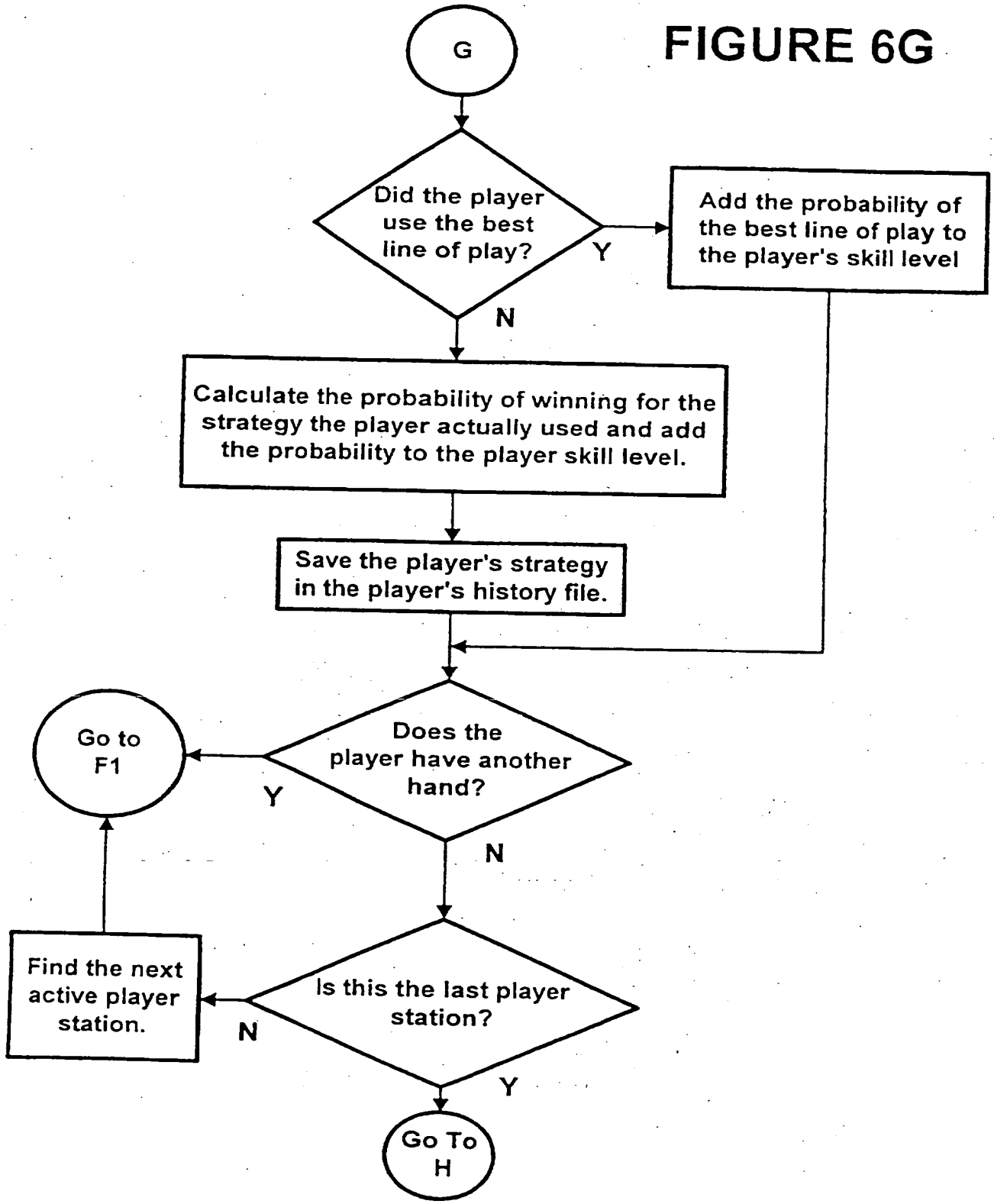

F
Locate the first active player station
F1
Does the player have a pair?
N
Y
Double the wager, adjust the blackjack wager total, and deal the player a card.
Y
Does the player want to split?
Y
N
Is the wager okay?
N
Display Error Message "E"
Does the player want to double down?
Y
N
Is the wager okay?
Y
N
Double the wager, adjust the blackjack wager total, and deal the player a card.
Display Error Message "E"
Does the player want to draw?
Y
N
Deal the player a card
Has the player busted?
N
Y
Calculate the probability of winning for the strategy theplayer used and add the probability to the player skill level.
Overlay the current play stategy
Go To G

FIGURE 6G


G
Did the player use the best line of play?
Y
N
Add the probability of the best line of play to the player's skill level
Calculate the probability of winning for the strategy the player actually used and add the probability to the player skill level.
Save the player's strategy in the player's history file.
Does the player have another hand?
Y
N
Go to F1
Is this the last player station?
N
Y
Find the next active player station.
Go To H

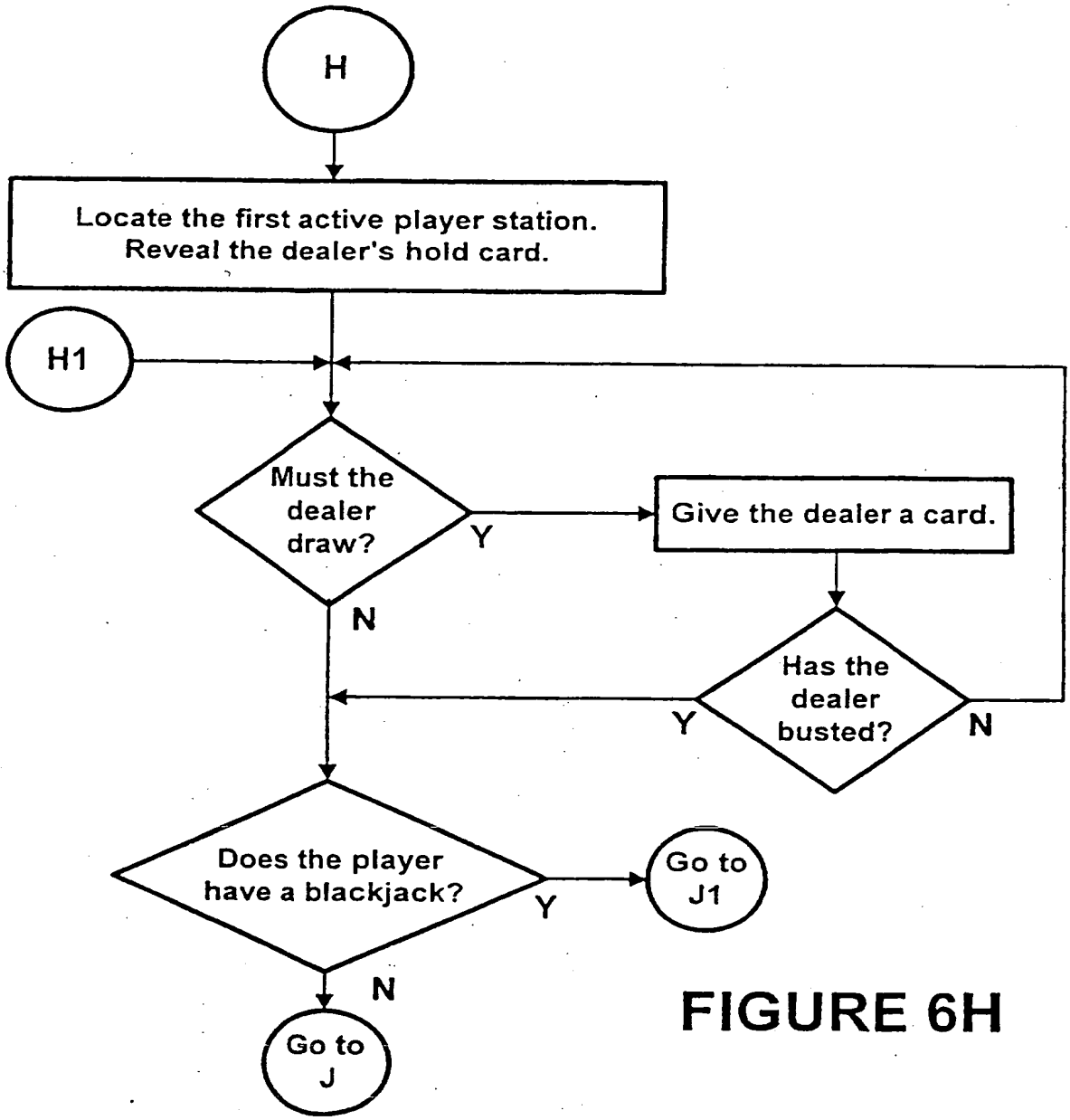


FIGURE 6H

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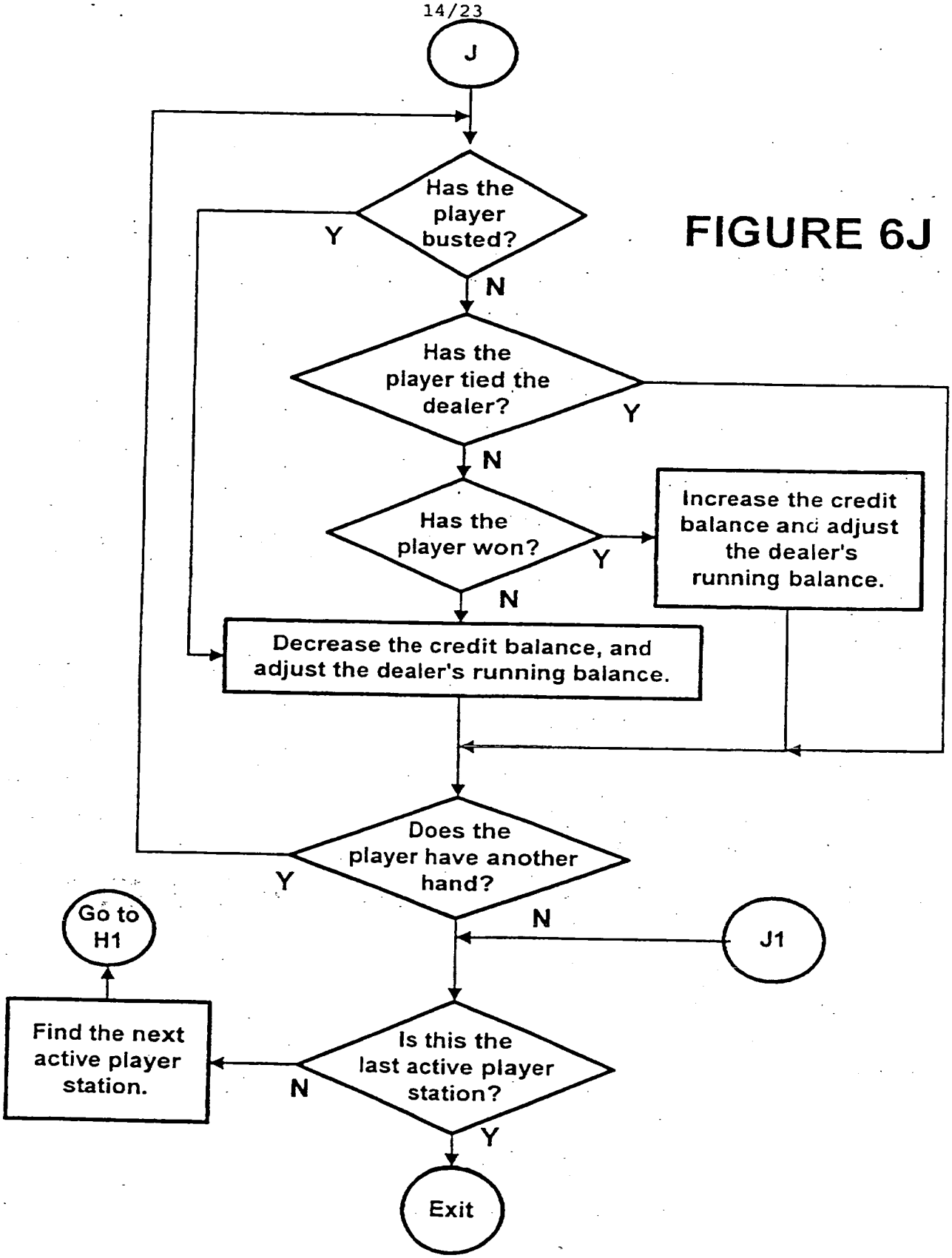
J
Has the player busted?
Y
N
Has the player tied the dealer?
Y
N
Has the player won?
Y
N
Increase the credit balance and adjust the dealer's running balance.
Decrease the credit balance, and adjust the dealer's running balance.
Does the player have another hand?
Y
N
J1
Go to H1
Find the next active player station.
Is this the last active player station?
N
Y
Exit

FIGURE 6J

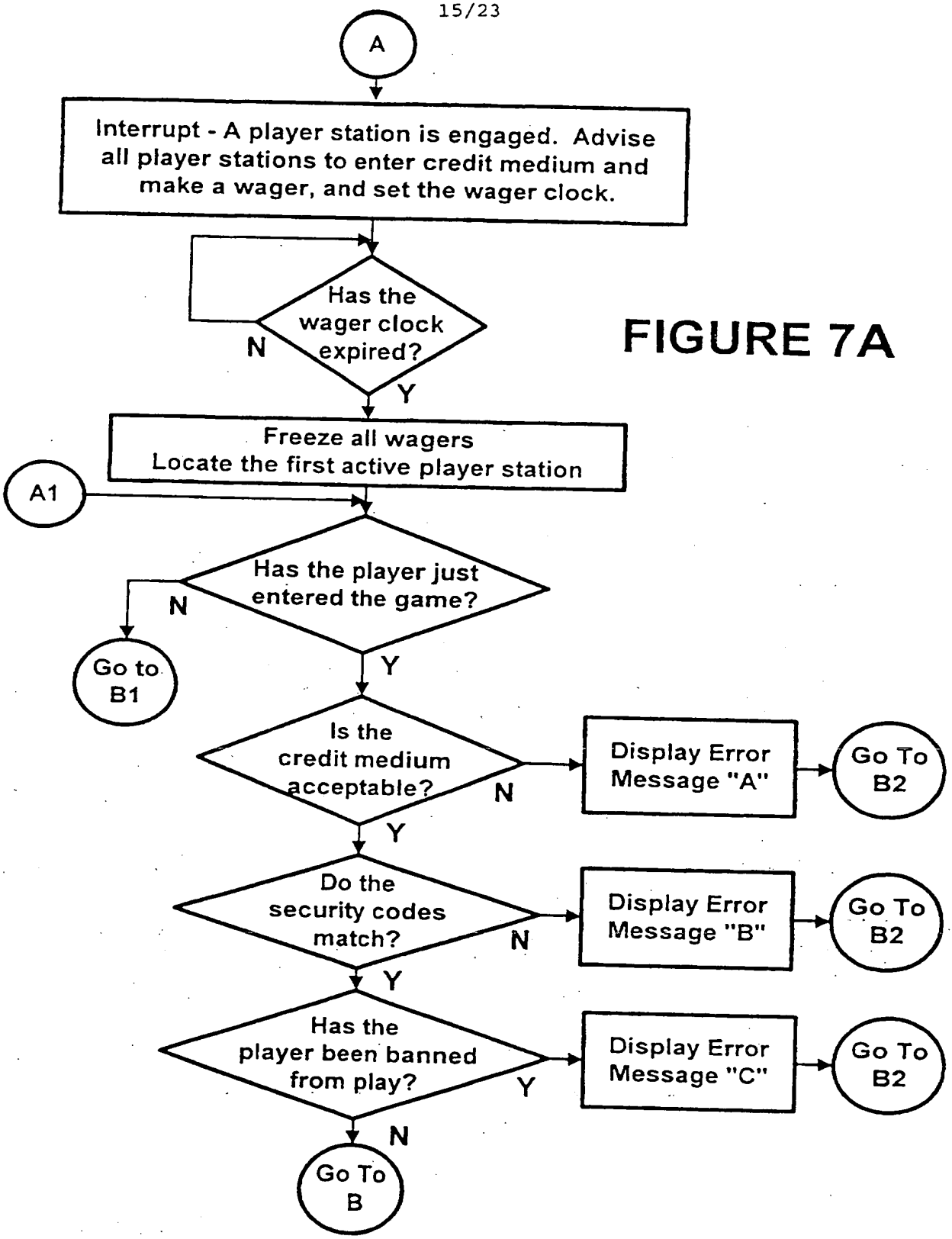
A
Interrupt - A player station is engaged. Advise all player stations to enter credit medium and make a wager, and set the wager clock.
Has the wager clock expired?
N
Y
Freeze all wagers
Locate the first active player station
A1
Has the player just entered the game?
N
Go to B1
Y
Is the credit medium acceptable?
N
Display Error Message "A"
Go To B2
Y
Do the security codes match?
N
Display Error Message "B"
Go To B2
Y
Has the player been banned from play?
Y
Display Error Message "C"
Go To B2
N
Go To B

FIGURE 7A

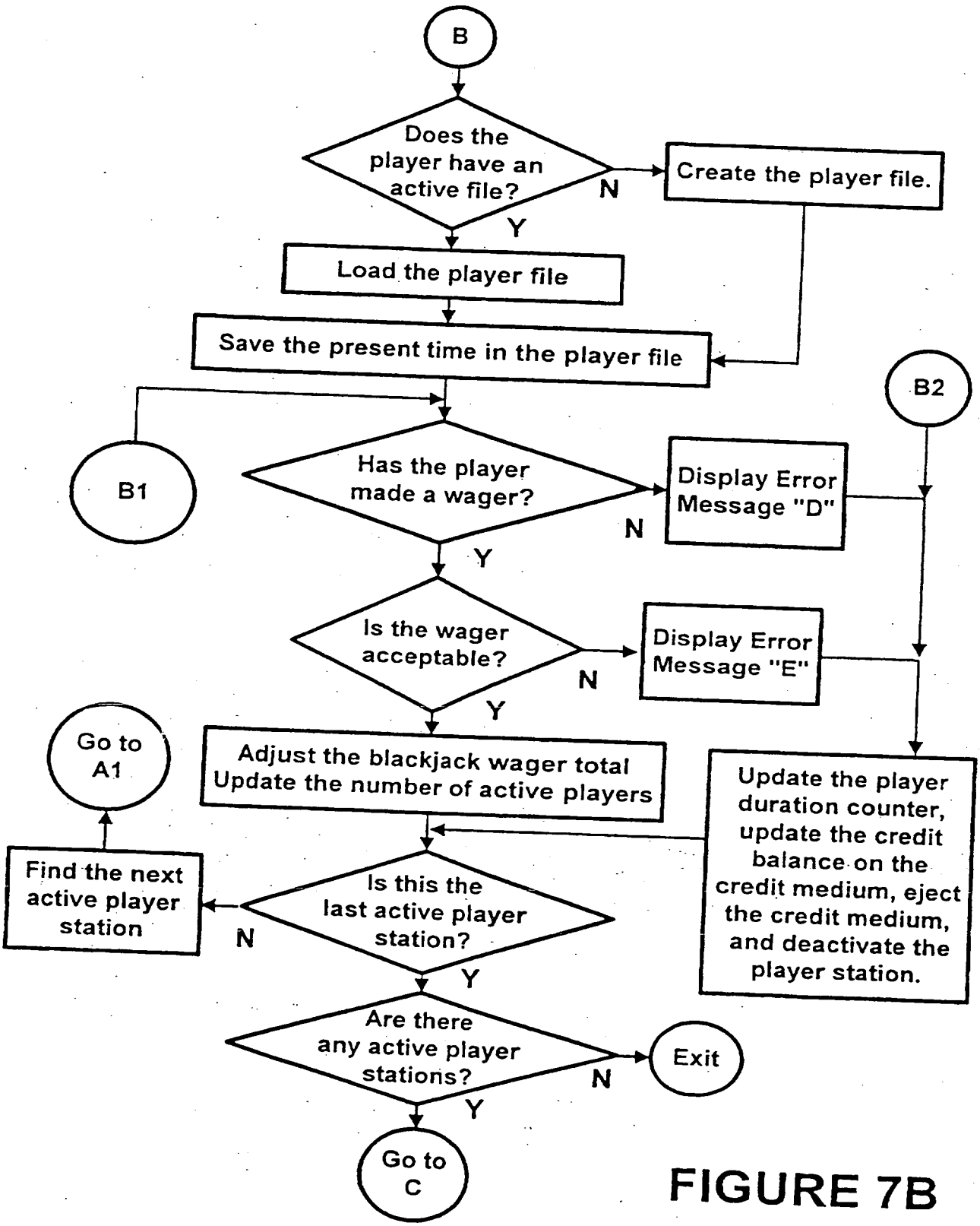
B
Does the player have an active file?
N
Y
Create the player file.
Load the player file
Save the present time in the player file
B2
B1
Has the player made a wager?
N
Y
Display Error Message "D"
Is the wager acceptable?
N
Y
Display Error Message "E"
Go to A1
Adjust the blackjack wager total
Update the number of active players
Update the player duration counter, update the credit balance on the credit medium, eject the credit medium, and deactivate the player station.
Find the next active player station
Is this the last active player station?
N
Y
Are there any active player stations?
N
Y
Exit
Go to C

FIGURE 7B

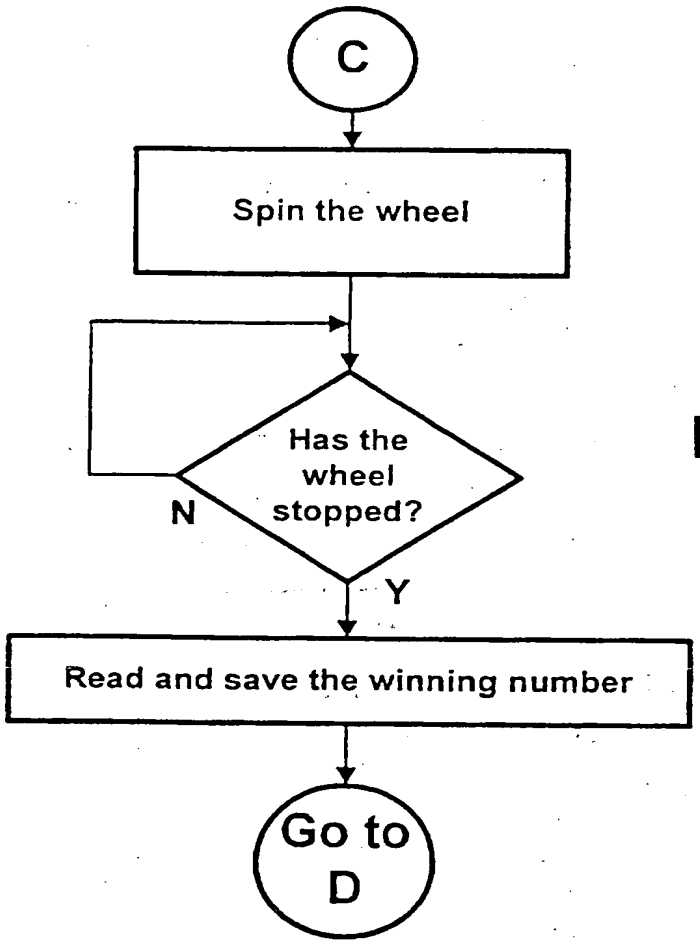
C
Spin the wheel
Has the wheel stopped?
N
Y
Read and save the winning number
Go to D

FIGURE 7C

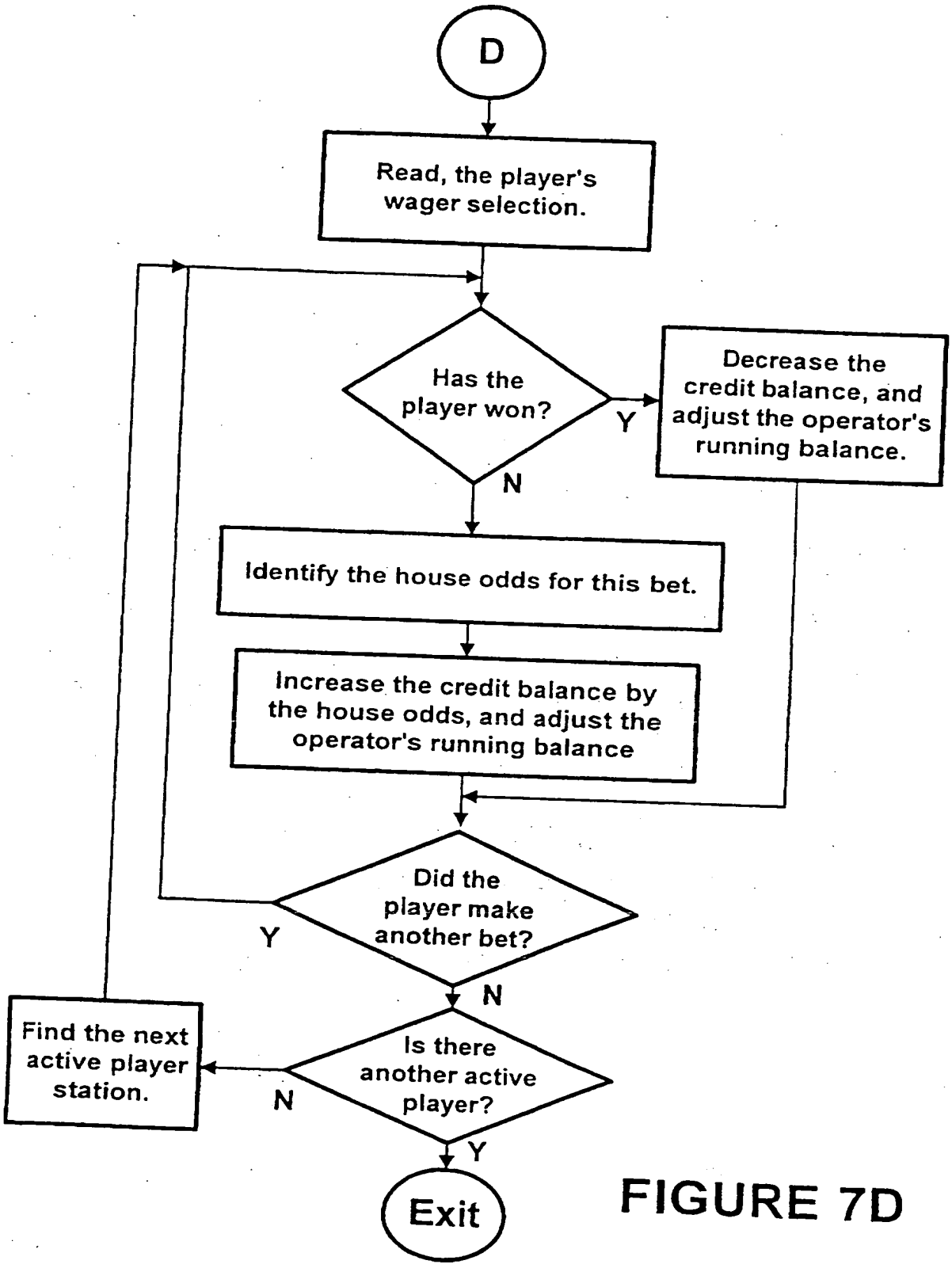
D
Read, the player's wager selection.
Has the player won?
Y
N
Decrease the credit balance, and adjust the operator's running balance.
Identify the house odds for this bet.
Increase the credit balance by the house odds, and adjust the operator's running balance
Did the player make another bet?
Y
N
Is there another active player?
N
Y
Find the next active player station.
Exit

FIGURE 7D

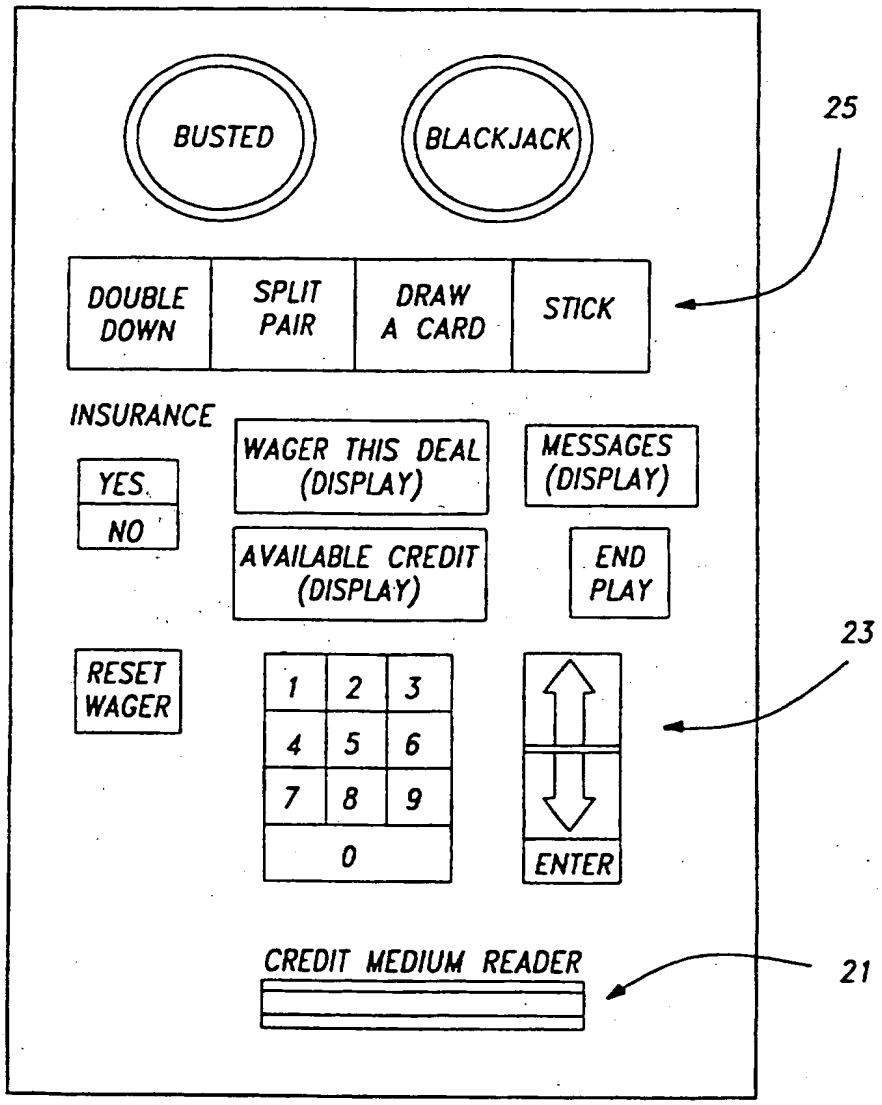
BUSTED
BLACKJACK
25
DOUBLE DOWN
SPLIT PAIR
DRAW A CARD
STICK
INSURANCE
YES
NO
WAGER THIS DEAL (DISPLAY)
MESSAGES (DISPLAY)
AVAILABLE CREDIT (DISPLAY)
END PLAY
23
RESET WAGER
1 2 3
4 5 6
7 8 9
0
ENTER
CREDIT MEDIUM READER
21

FIGURE 8

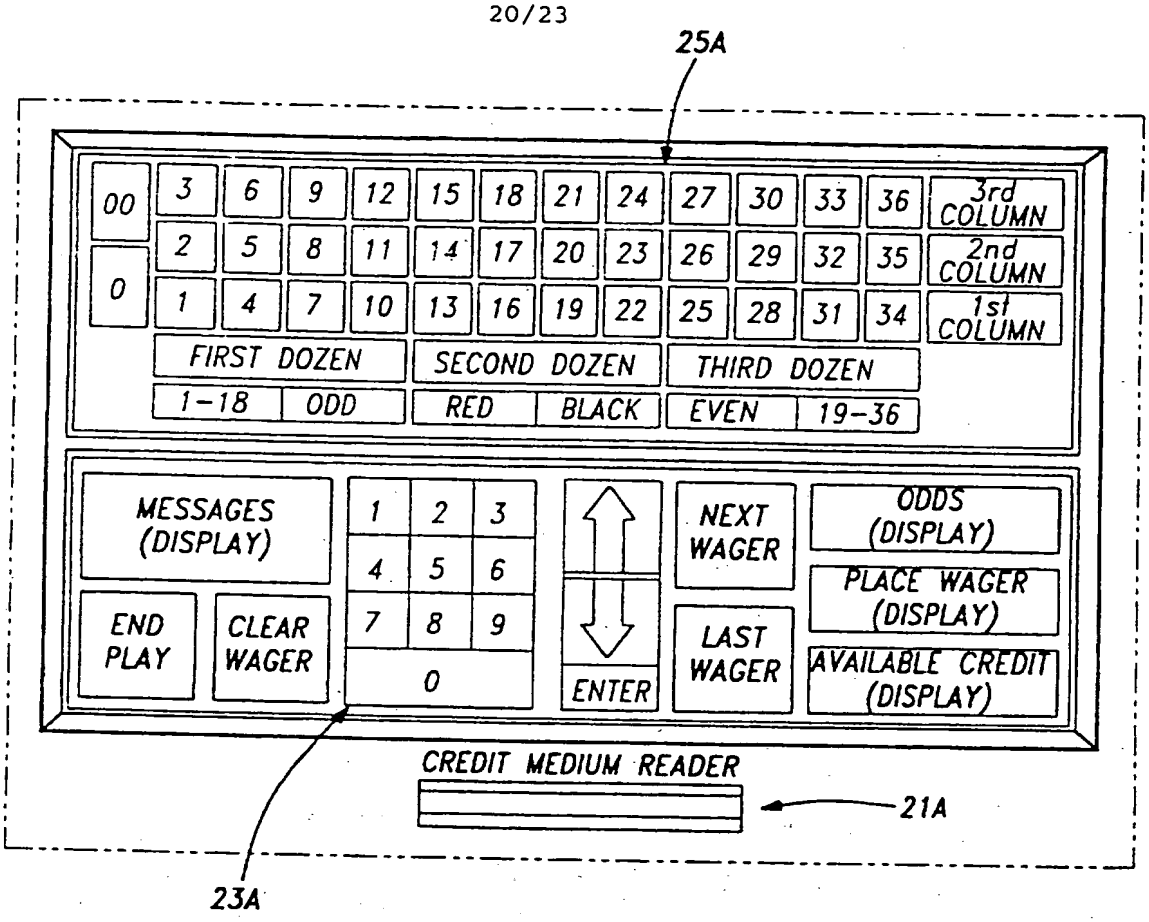
25A
00
0
3
6
9
12
15
18
21
24
27
30
33
36
3rd COLUMN
2
5
8
11
14
17
20
23
26
29
32
35
2nd COLUMN
1
4
7
10
13
16
19
22
25
28
31
34
1st COLUMN
FIRST DOZEN
SECOND DOZEN
THIRD DOZEN
1-18
ODD
RED
BLACK
EVEN
19-36
MESSAGES (DISPLAY)
END PLAY
CLEAR WAGER
1
2
3
4
5
6
7
8
9
0
ENTER
NEXT WAGER
LAST WAGER
ODDS (DISPLAY)
PLACE WAGER (DISPLAY)
AVAILABLE CREDIT (DISPLAY)
CREDIT MEDIUM READER
21A
23A

FIGURE 9

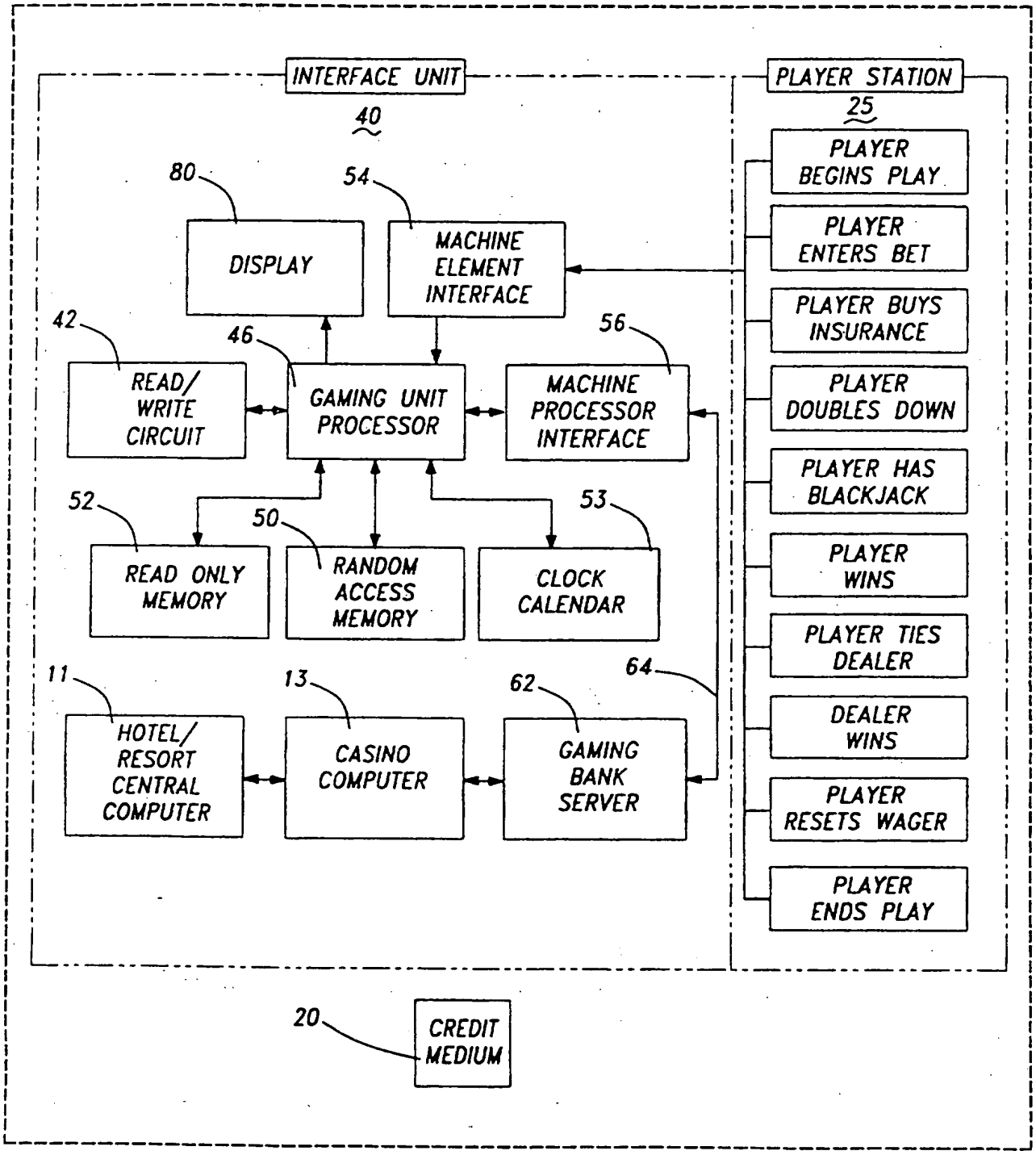
INTERFACE UNIT
40
PLAYER STATION
25
80
DISPLAY
54
MACHINE ELEMENT INTERFACE
42
READ/ WRITE CIRCUIT
46
GAMING UNIT PROCESSOR
56
MACHINE PROCESSOR INTERFACE
52
READ ONLY MEMORY
50
RANDOM ACCESS MEMORY
53
CLOCK CALENDAR
11
HOTEL/ RESORT CENTRAL COMPUTER
13
CASINO COMPUTER
62
GAMING BANK SERVER
64
20
CREDIT MEDIUM
PLAYER BEGINS PLAY
PLAYER ENTERS BET
PLAYER BUYS INSURANCE
PLAYER DOUBLES DOWN
PLAYER HAS BLACKJACK
PLAYER WINS
PLAYER TIES DEALER
DEALER WINS
PLAYER RESETS WAGER
PLAYER ENDS PLAY

FIGURE 10

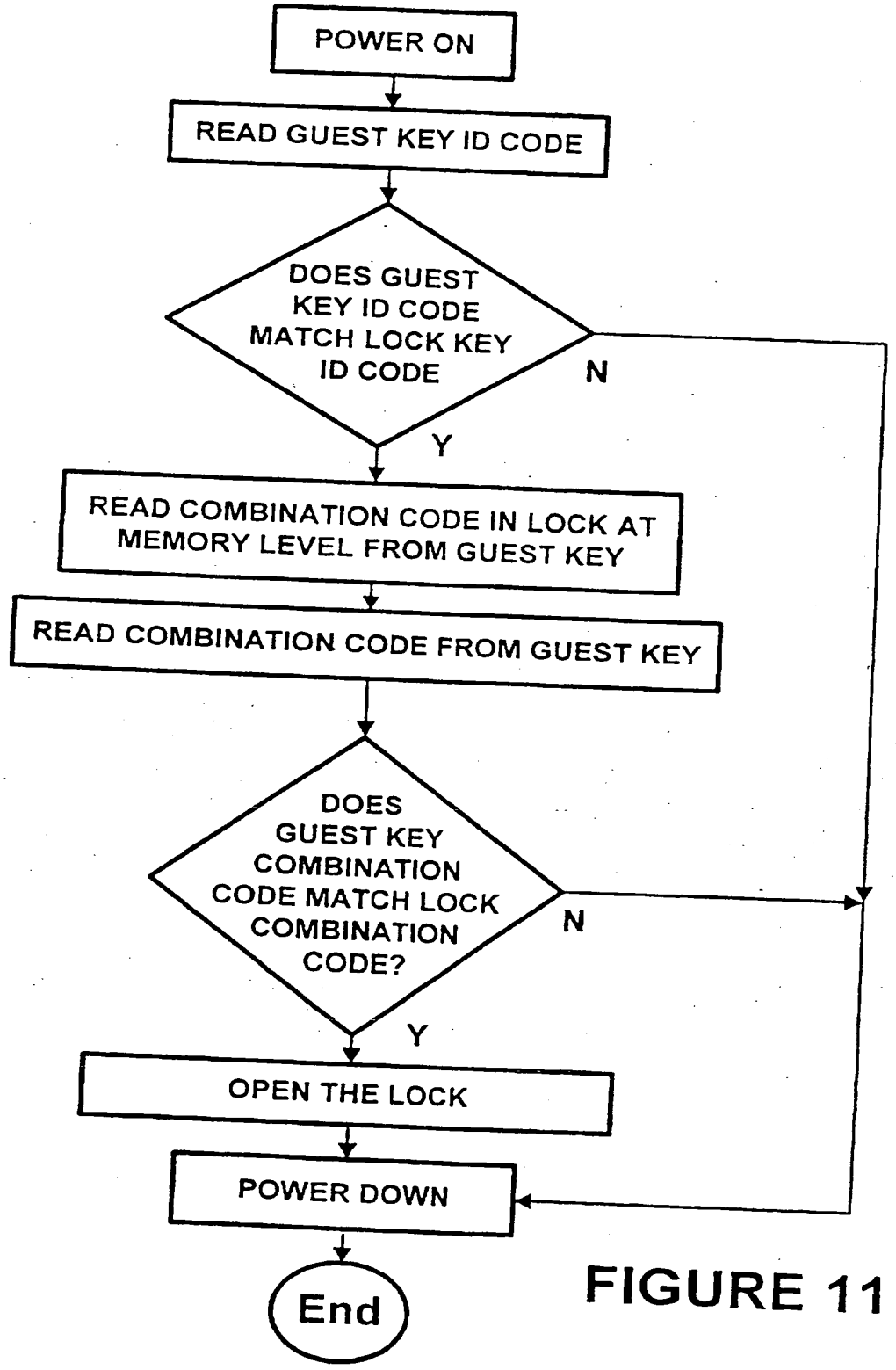
POWER ON
READ GUEST KEY ID CODE
DOES GUEST KEY ID CODE MATCH LOCK KEY ID CODE
N
Y
READ COMBINATION CODE IN LOCK AT MEMORY LEVEL FROM GUEST KEY
READ COMBINATION CODE FROM GUEST KEY
DOES GUEST KEY COMBINATION CODE MATCH LOCK COMBINATION CODE?
N
Y
OPEN THE LOCK
POWER DOWN
End

FIGURE 11

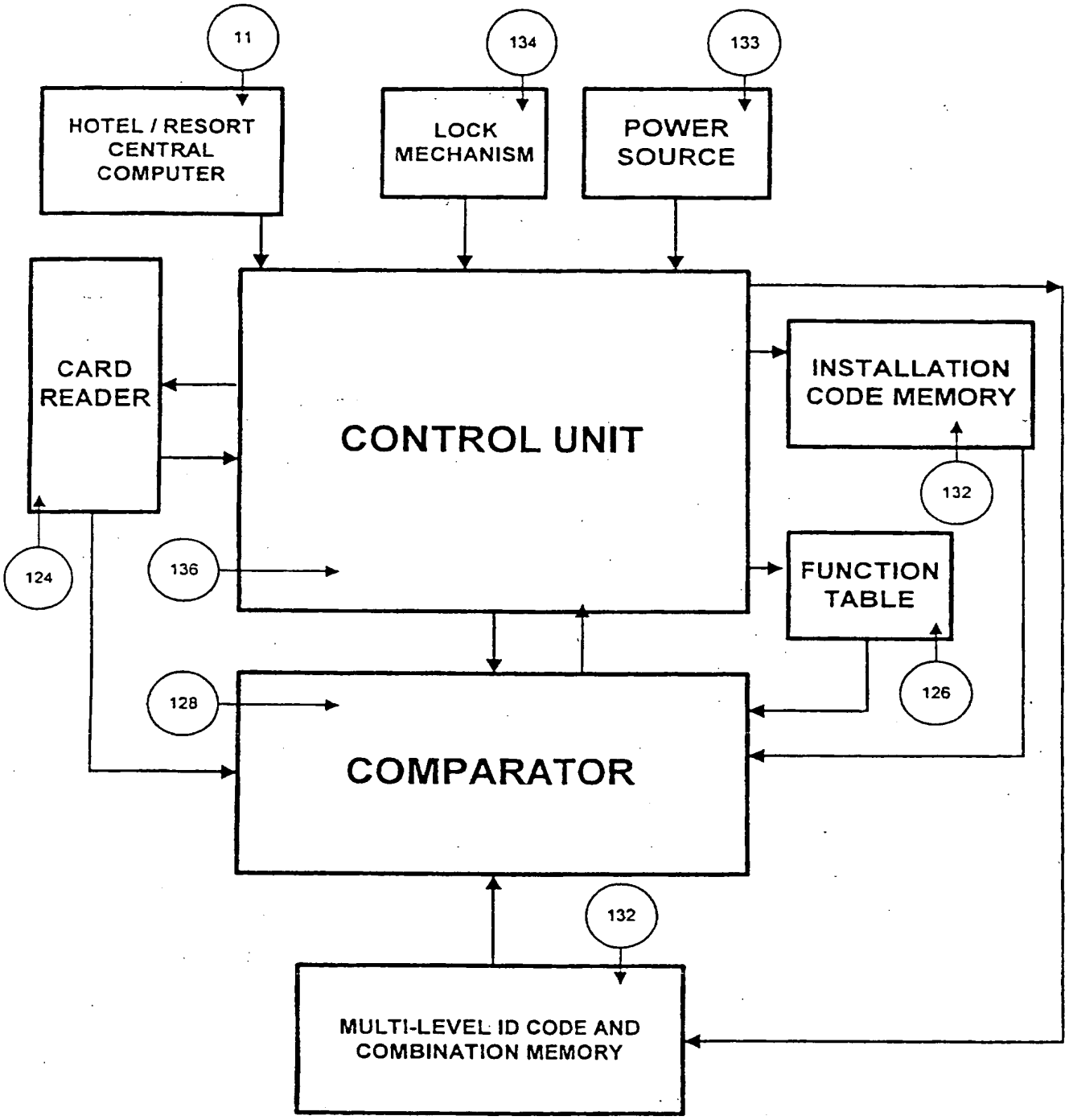
11
134
133
HOTEL / RESORT CENTRAL COMPUTER
LOCK MECHANISM
POWER SOURCE
CARD READER
CONTROL UNIT
INSTALLATION CODE MEMORY
132
124
136
FUNCTION TABLE
126
128
COMPARATOR
132
MULTI-LEVEL ID CODE AND COMBINATION MEMORY

FIGURE 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/05736

A. CLASSIFICATION OF SUBJECT MATTER
IPC(6) :G06F 07/04; 15/28, 44
US CL :235/382.5, 382; 340/825.31; 463/25, 29, 43
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 70/278; 235/375, 382, 382.5; 340/825.30-825.34; 361/172; 463/1. 12. 13. 16-20, 25, 29, 30, 31, 36-43

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS
Search Terms: card key and lock and security and hotel or apartment

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,451,054 A (ORENSTEIN) 19 September 1995, entire document.	1-9
A	US 5,422,634 A (OKUBO) 06 June 1995, entire document.	10-12
A	US 5,159,549 A (HALLMAN, JR. et al) 27 October 1992, entire document.	1-9
A	US 4,339,798 A (HEDGES et al) 13 July 1982, entire document.	1-9

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
20 MAY 1997

Date of mailing of the international search report
09 JUN 1997

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Form PCT/ISA/210 (second sheet)(July 1992)*

RNSDOCID: <WO 9738366A1 | >

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/05736

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

BNSDOCID: <WO 9738366A1 I >